MINOLTA

MINOLTA MASTER®

PRO 8-918

F MODE D'EMPLOI

Hi8

9222-2963-18

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E72118
P4706526
Imprimé au Japon KF-T(N)

Hi8

E INSTRUCTION MANUAL

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E72118
P4706526
Printed in Japan KF-T(N)

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER – SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

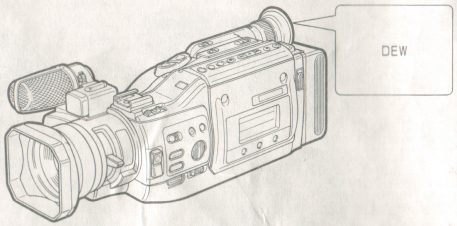
This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

CAUTION:
TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

MOISTURE

Moisture may occur if the video camera/recorder is moved from a cold area to a warm humid area. A flashing **"DEW"** indication in the viewfinder indicates that moisture is on the recorder mechanism, which could result in tape damage. When the **"DEW"** indication in the viewfinder is flashing the unit will not operate. When this happens, press the **"EJECT"** button, remove the tape, and wait for the moisture to dry ..... the **"DEW"** indication in the viewfinder will stop flashing.



PRECAUTIONS

Any problems that occur as a result of any of the following conditions will not be covered by our warranty.

- **No water, dust or sand**
  Be careful that no water, dust or sand enters the camera/recorder.
- The solid-state image sensor is basically immune to direct sunlight or excessively bright objects, but, avoid prolonged exposure.
- When you are not using the camera/recorder, switch off the power and attach the lens cap.
- When you shoot at a scene which contains an extremely bright object such as the sun or a light source, a bright vertical bar may appear in the picture.
  Your camera/recorder is functioning properly, but the solid-state pickup device (C.C.D) usually causes this as an inherent characteristic. Try to avoid shooting an excessive bright object directly.
- Be sure not to leave it in a place where the temperature exceeds 120°F, or the pickup device may be damaged.
  Dangerous includes:
  - Inside a car with the windows closed and in direct sunshine.
  - Near heating appliances.
- Do not leave the viewfinder lens facing sunlight for a prolonged period, or the phosphorescent surface of the cathode ray tube may be damaged.

Congratulations on buying the Hi8 video camera/recorder. For maximum pleasure and convenience please read these simple instructions before operating your camera/recorder.

WARNING: Many television programs and films are copyrighted. In certain circumstances, copyright law may apply to private in-home video taping of copyrighted materials.

FEATURES

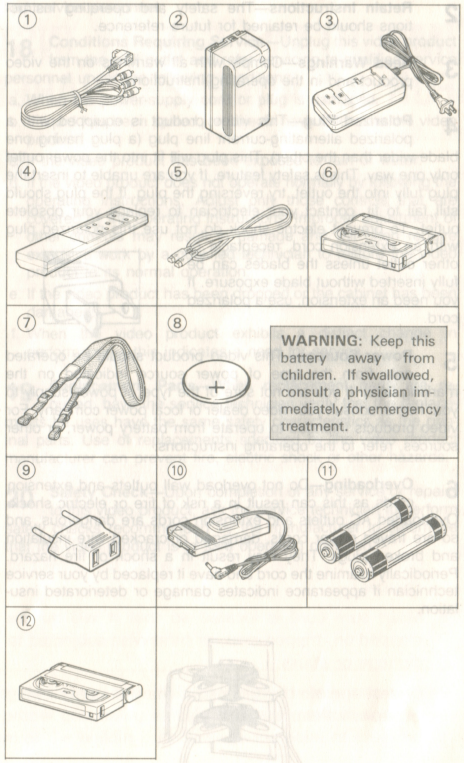
- Hi8
- Two solid-state camera pickup C.C.Ds
- Program AE (Auto Exposure)
- Multi Dimensional Auto Focus
- High speed shutter
- Interval and one-shot recording
- Hi-Fi Stereo
- Flying Erase Head
- Audio/Video dub
- Time and date
- Titler
- Wireless Remote Control

ACCESSORIES

Check to make sure you have the following components and accessories (besides the camera/recorder unit itself) before disposing of the packing material.

1. AV Stereo Output Cord VOC-3
2. Battery Pack VBP-401
3. AC Adapter/Charger VAC-400U
4. Remote Controller VIR-1
5. S-Video Cable
6. Hi8 Video Cassette
7. Shoulder Strap VSS-2
8. Battery for Date/Time
9. AC Plug Adapter
10. External Power Adapter
11. Batteries for Remote Controller
12. Dry head cleaning tape

Camcorder Model: Master Pro 8-918
Serial: 21204941
received: 05/12/93
AC adapter/charger serial: 21133005



WARNING: Keep this battery away from children. If swallowed, consult a physician immediately for emergency treatment.

IMPORTANT SAFEGUARDS

In addition to the careful attention devoted to quality standards in the manufacture of your video product, safety is a major factor in the design of every instrument. But, safety is your responsibility too.

This page lists important information that will help to assure your enjoyment and proper use of a Video Camera/Recorder and accessory equipment. Please read it carefully before operating your video product and keep it in a handy place for future reference.

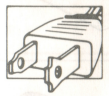
INSTALLATION

1 **Read and Follow Instructions**—All the safety and operating instructions should be read before the video product is operated. Follow-all operating and use instructions.

2 **Retain Instructions**—The safety and operating instructions should be retained for future reference.

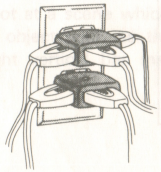
3 **Heed Warnings**—Comply with all warnings on the video product and in the operating instructions.

4 **Polarized Plug**—This video product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. To prevent electric shock do not use this polarized plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted without blade exposure. If you need an extension, use a polarized cord.



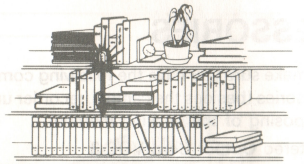
5 **Power Sources**—This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your video dealer or local power company. For video products intended to operate from battery power, or other sources, refer to the operating instructions.

6 **Overloading**—Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock. Overloaded AC outlets and extension cords are dangerous, and so are frayed power cords, damaged or cracked wire insulation and broken plugs. They may result in a shock or fire hazard. Periodically examine the cord and have it replaced by your service technician if appearance indicates damage or deteriorated insulation.



7 **Power-Cord Protection**—Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

8 **Ventilation**—Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the video product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the video product on a bed, sofa, rug, or other similar surface. This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the video product manufacturer's instructions have been followed.



9 **Attachments**—Do not use attachments unless recommended by the video product manufacturer as they may cause hazards.

Caution: Maintain electrical safety. Powerline operated equipment or accessories connected to this unit should bear the UL listing mark or CSA certification mark on the accessory itself and should not have been modified so as to defeat the safety features. This will help avoid any potential hazard from electric shock or fire. If in doubt, contact qualified service personnel.

10 **Water and Moisture**—Do not use this video product near water—for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.

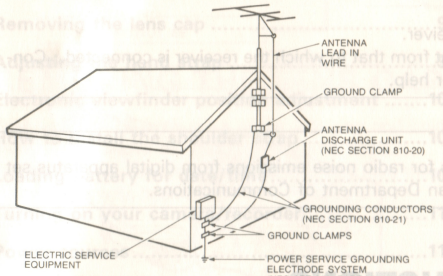
11 **Accessories**—Do not place this video product on an unstable cart, stand, tripod, bracket, or table. The video product may fall, causing serious injury to a child or adult, and serious damage to the appliance. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the video product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

11A An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

S3125A

12 **Outdoor Antenna Grounding**—If an outside antenna or cable system is connected to the video product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See example below.

EXAMPLE OF ANTENNA GROUNDING


ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
ELECTRIC SERVICE EQUIPMENT
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)

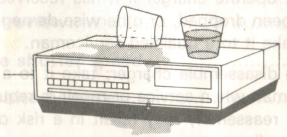
NEC — NATIONAL ELECTRICAL CODE

13 **Power Lines**—An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching or approaching such power lines or circuits as contact with them might be fatal. Installing an outdoor antenna can be hazardous and should be left to a professional antenna installer.

USE

14 **Cleaning**—Unplug this video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

15 **Object and Liquid Entry**—Never push objects of any kind into this video product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the video product.



16 **Lightning**—For added protection for this video product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable-system. This will prevent damage to the video product due to lightning and power-line surges.

SERVICE

17 **Servicing**—Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

18 **Conditions Requiring Service**—Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions.

a. When the power-supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the video product.
c. If the video product has been exposed to rain or water.
d. If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.
e. If the video product has been dropped or the cabinet has been damaged.
f. When the video product exhibits a distinct change in performance—this indicates a need for service.

19 **Replacement Parts**—When replacement parts are required, have the service technician verify that the replacements he uses have the same safety characteristics as the original parts. Use of replacements specified by the video product manufacturer can prevent fire, electric shock or other hazards.

20 **Safety Check**—Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks recommended by the manufacturer to determine that the video product is in safe operating condition.

STATEMENT OF FCC COMPLIANCE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/TV technician for help.

STATEMENT OF DOC COMPLIANCE

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

IMPORTANT SAFETY INSTRUCTIONS FOR AC ADAPTER/CHARGER

1. **Save these instructions** — This page contains important safety and operating instructions for AC Adapter/Charger Model VAC-400U.
2. Before using AC Adapter/Charger, read all instructions and cautionary markings on (1) AC Adapter/Charger, (2) battery and (3) product using battery.
3. Also read all instructions on pages 4 and 5.
4. **Caution** — To reduce risk of injury, charge only rechargeable battery, VBP-400 or VBP-401. Other types of batteries may burst causing personal injury and damage.
5. Do not expose charger to rain or snow.
6. Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
7. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
8. Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
9. Do not operate charger with damaged cord or plug — replace them immediately.
10. An extension cord should not be used unless absolutely necessary.
    Use of improper extension cord could result in a risk of fire and electric shock. If extension cord must be used, make sure:
    A. That pins on plug of extension cord are the same number, size, and shape as those of plug on charger.
    B. That extension cord is properly wired and in good electrical condition; and
    C. That wire size should be met below:

Minimum AWG size	Length of extension cord (feet)
18	Equal to or less than 100
16	Equal to or less than 150

11. Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.
12. Do not disassemble charger; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
13. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning.

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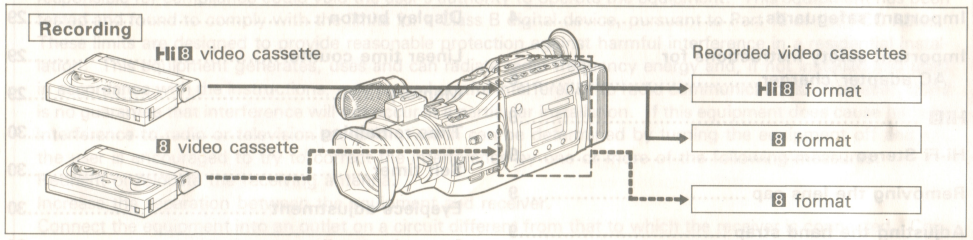
"Note to CATV system installer: This reminder is provided to call the CATV system installer's attention to Article 820—40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical".

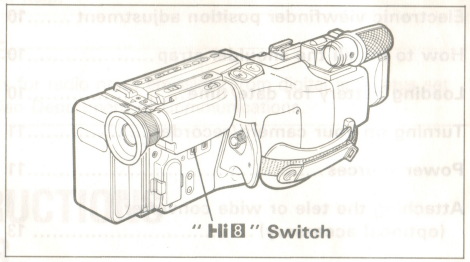
Hi8

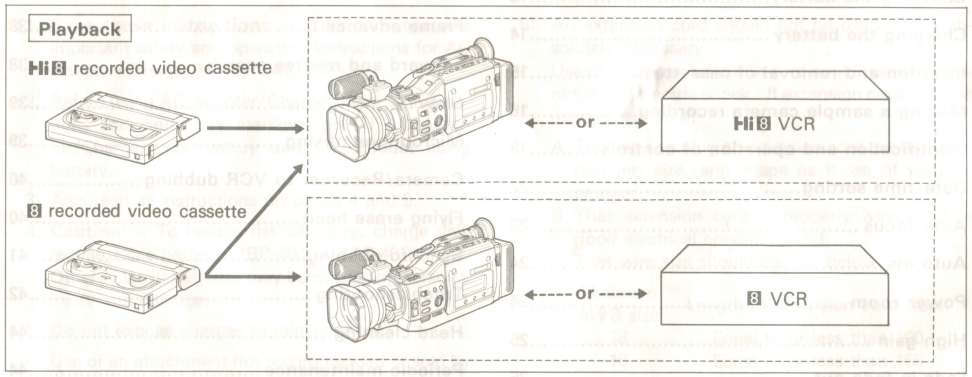
Hi8 has realized high resolution and high picture quality when compared to the standard 8 format.

■ **Compatibility with conventional video camera/recorder**



- Hi8 video cassettes are recorded in the Hi8 format when the Hi8 switch of this camera/recorder is set to **"AUTO"**, and recorded in the 8 format when it is set to **"OFF"**.
- 8 video cassettes are recorded in the 8 format regardless of the position of the Hi8 switch.



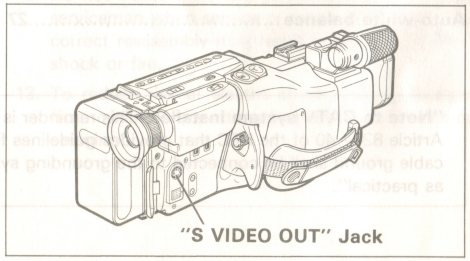


- During playback, the recording format is discriminated automatically and video cassettes are played back correctly regardless of the position of the Hi8 switch.
- Video cassettes recorded in the Hi8 format cannot be played back by an 8 VCR.

■ **"S VIDEO OUT" Jack**

This unit has **"S VIDEO OUT"** jack which outputs the video signal after separation into luminance (Y) and chrominance (C) signals. Connecting jack to a TV set gives a picture much clearer than can be obtained from the signal supplied through the conventional video jack.

* The **"S"** in the S VIDEO OUT jack stands for a **"S"**eparate Y/C.



Hi-Fi STEREO

Although conventional 8mm camera/recorders handle monaural sound, this camera/recorder uses a Hi-Fi stereo sound system.

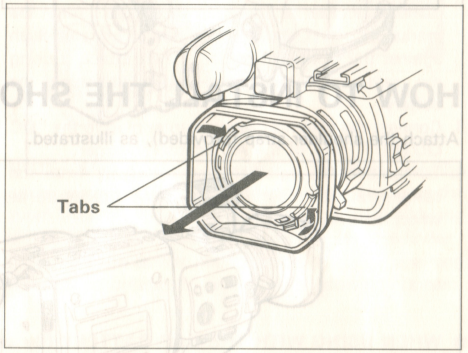
■ **Compatible with conventional camera/recorders**

When a cassette recorded by this camera/recorder is played by a conventional 8mm camera/recorder, monaural sound is output. When a cassette recorded by a conventional 8mm camera/recorder is played by this machine, monaural sound is output.

- This camera/recorder has only one tape speed, the SP mode (approx. 14.3 mm/sec). Recording and playback in the LP mode (approx. 7.2 mm/sec.) are not possible.

REMOVING THE LENS CAP

Push the tabs on both sides of the lens cap and hold them, then remove the cap from the lens hood.
To reattach the lens cap, push the tabs and hold them in the same way, then attach it.

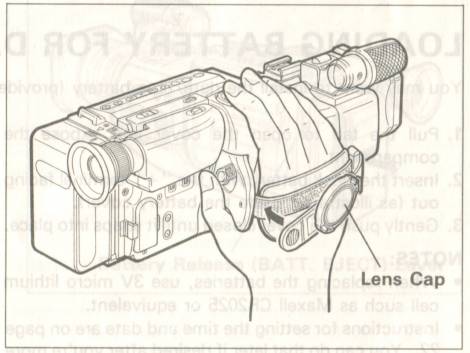


ADJUSTING THE HAND STRAP

Adjust the hand strap, as illustrated.

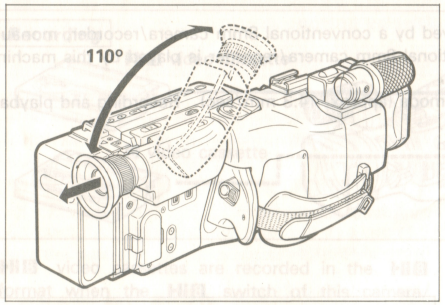
Adjust the length of the hand strap so you can press the REC START/STOP button and power zoom switch easily with your fingers.

- Attach the lens cap as shown in the figure during shooting to prevent the cord from dangling.

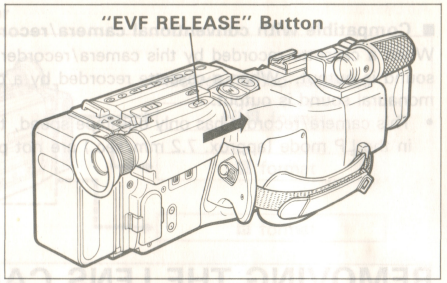


ELECTRONIC VIEWFINDER POSITION ADJUSTMENT

- Adjust the electronic viewfinder to a position where you can see through it easily while holding the **"EVF RELEASE"** button.



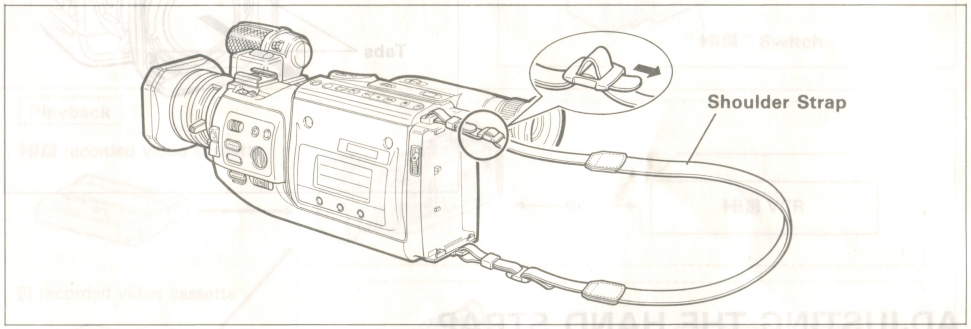
- Put the viewfinder back to original position while holding the **"EVF RELEASE"** button depressed.



NOTE: Put the viewfinder back to original position when storing the camera/recorder into the carrying case or carrying the camera/recorder.

HOW TO INSTALL THE SHOULDER STRAP

Attach the shoulder strap (provided), as illustrated.



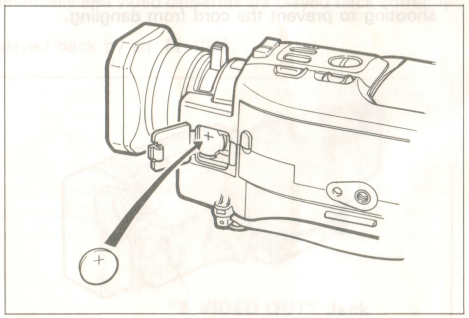
LOADING BATTERY FOR DATE/TIME

You may want to install the date/time battery (provided) immediately to prevent misplacing it.

1. Pull the tab to open the cover and expose the compartment.
2. Insert the clock battery with the "+" terminal facing out (as illustrated inside the battery cover).
3. Gently push the cover closed until it snaps into place.

NOTES:

- When replacing the batteries, use 3V micro lithium cell such as Maxell CR2025 or equivalent.
- Instructions for setting the time and date are on page 22. You can do that later if desired after you're more familiar with your camera/recorder.



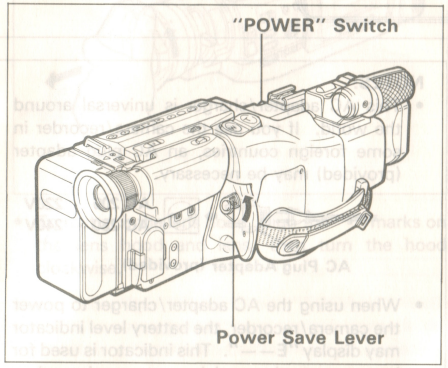
TURNING ON YOUR CAMERA/RECORDER

The camera/recorder has two power controls — the **"POWER"** switch and power save lever.

■ To turn on the camera's power

Slide the **"POWER"** switch to **"CAM"** and then set the power save lever to **"NORMAL"**.

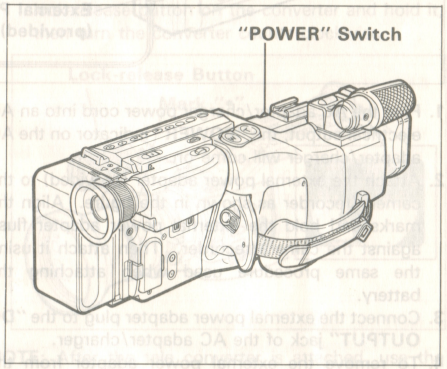
- Hold the small red button in the **"POWER"** switch depressed to slide the switch.
- To turn off the camera's power, slide the **"POWER"** switch to **"OFF"** or set the power save lever to **"POWER SAVE"**.



■ To turn on the VCR's power

Slide the **"POWER"** switch to **"VCR"**.

- The power save lever has no effect when the **"POWER"** switch is in the **"VCR"** position.
- To turn off the VCR power, slide the **"POWER"** switch to **"OFF"**.

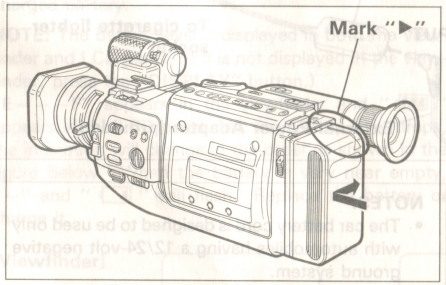


POWER SOURCES

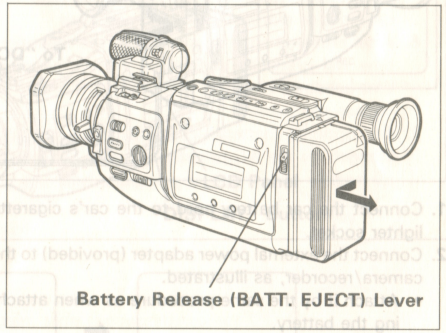
■ WHEN USING WITH THE BATTERY (provided)

NOTE: The battery must be charged before it can be used for the first time. Refer to **"CHARGING THE BATTERY"** on page 14.

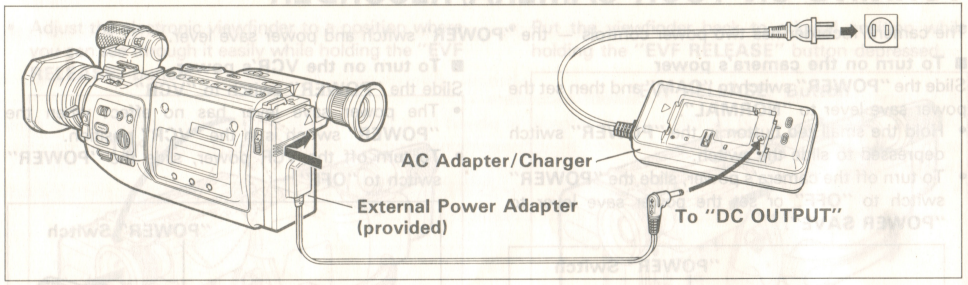
1. To attach the battery, align the "▶" mark on the battery with that of the camera/recorder.
2. Hold the battery flush against the camera/recorder and slide it in the direction of the arrow.



3. To remove, slide the battery to the left and off while sliding and holding the Battery Release (BATT. EJECT) lever.



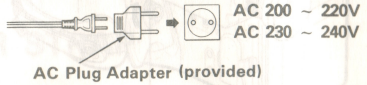
■ **WHEN USING WITH THE AC ADAPTER/CHARGER (provided)**



1. Plug the AC adapter/charger power cord into an AC electrical output; the **"POWER"** indicator on the AC adapter/charger will come on.
2. Attach the external power adapter (provided) to the camera/recorder as shown in the figure. Align the marks and hold the external power adapter flush against the camera/recorder. Then attach it using the same procedure used when attaching the battery.
3. Connect the external power adapter plug to the **"DC OUTPUT"** jack of the AC adapter/charger.
4. To remove the external power adapter from the camera/recorder, perform the same procedure as when removing the battery.

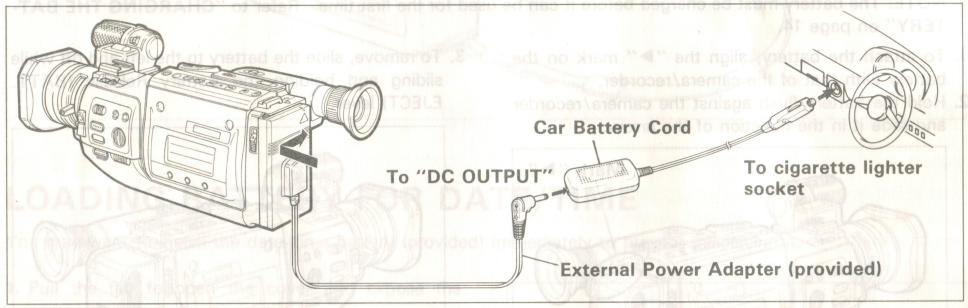
NOTES:

- This AC adapter/charger is universal around the world. If you use the camera/recorder in some foreign countries, an AC plug adapter (provided) may be necessary.



- When using the AC adapter/charger to power the camera/recorder, the battery level indicator may display "E— —". This indicator is used for battery operation and has no meaning when using the AC adapter/charger to power the camera/recorder.

■ **WHEN USING WITH THE CAR BATTERY (By using optional car battery cord Minolta VBC-400U)**



1. Connect the car battery cord to the car's cigarette lighter socket.
2. Connect the external power adapter (provided) to the camera/recorder, as illustrated.
   - Attach it by the same procedure as when attaching the battery.
3. Connect the small plug of the external power adapter to **"DC OUTPUT"** of the car battery cord.

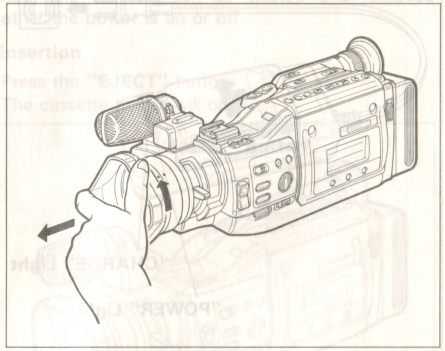
NOTES:

- The car battery cord is designed to be used only with automobiles having a 12/24-volt negative ground system.
- To prevent fire or shock hazard or damage to your camera/recorder, please use only with Minolta's car battery cord model VBC-400U.

NOTE: Be sure to set the **"POWER"** switch to **"OFF"** position when attaching or detaching a power supply (battery, AC adapter/charger, etc.) to the camera/recorder.

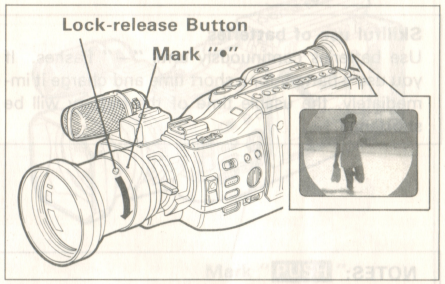
ATTACHING THE TELE OR WIDE CONVERTER (Optional accessory)

1. To remove the lens hood, turn it counterclockwise.



- To reattach the lens hood, align the "•" marks on the lens hood and lens, then turn the hood clockwise.

2. Align the lock-release button on the tele or wide converter and the "•" mark on the lens, then attach the converter.
3. Hold the tele or wide converter flush against the camera/recorder and turn it clockwise.
   - To detach the tele or wide converter, press the lock-release button on the converter and hold it, then turn the converter counterclockwise.

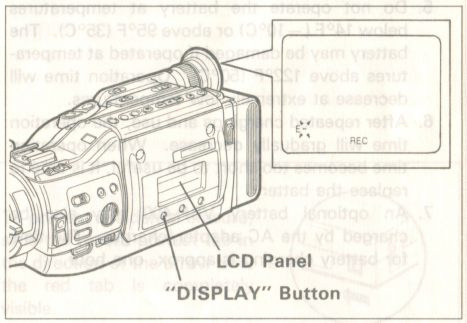


NOTE: After the tele converter is attached, use the power zoom switch to activate zooming. If you use the zoom lever to zoom to the wide position, the shadowing shown in the illustration will appear in the viewfinder. If you use the power zoom switch to zoom, zooming will stop automatically before the shadowing appears.

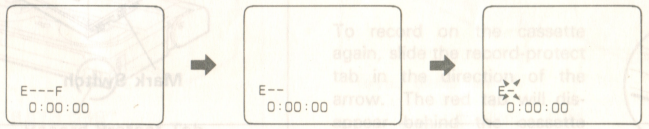
CHECKING THE BATTERY

When the **"E—"** indication appears in the viewfinder and **"—"** flashes while the camera/recorder is being operated with a battery (provided), it indicates that the battery charge is low. Charge it or replace it with a charged battery.

NOTE: The battery level is displayed in both the viewfinder and LCD panel. (If it is not displayed in the viewfinder, press the **"DISPLAY"** button.)
"E———F" appears in the viewfinder and " " appears in the LCD panel. As the battery level drops, the indication will change in the order as shown in the figure below. When the battery is very near empty, "—" and " " will flash. Replace the battery or charge it.



[Viewfinder]

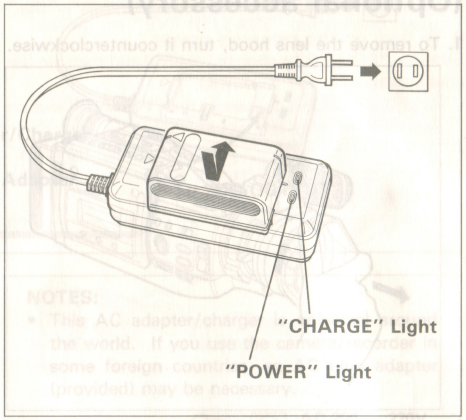


[LCD panel]

CHARGING THE BATTERY

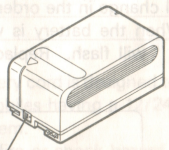
1. Plug the AC adapter/charger power cord into AC electrical outlet.
2. Attach the battery to the AC adapter/charger. Align the reference arrow on the battery with that of AC adapter/charger and push the battery flush with the AC adapter/charger and slide it in the direction of arrow.
3. The **"CHARGE"** light will be lit while the battery is accepting a charge, and will go out when the battery is fully charged.

Skillful use of batteries
Use batteries continuously until "—" flashes. If you use a battery for a short time and charge it immediately, the usable time of the battery will be shortened.



NOTES:

1. The time required for charging the battery is approx. two hours.
2. When fully charged, the battery should supply approx. 70 ~ 80 minutes of operating time (depending on how much you use zoom and pause).
3. Charge the battery before use and store it at normal room temperature.
4. The battery should be charged at a temperature of 32°F — 95°F (0°C — 35°C) to prevent damage.
5. Do not operate the battery at temperatures below 14°F (—10°C) or above 95°F (35°C). The battery may be damaged if operated at temperatures above 122°F (50°C). Operation time will decrease at extremely low temperatures.
6. After repeated chargings and use, the operation time will gradually decrease. When operation time becomes too short to be useful, it is time to replace the battery.
7. An optional battery VBP-400 may also be charged by the AC adapter/charger. The time for battery charging is approx. one hour.
8. If **"CHARGE"** and **"POWER"** lights on the AC adapter/charger start flashing, remove the battery and then reattach it. If after several attempts both lights continue to flash, this means your battery cannot take a charge and must be replaced with a new one.
   Both lights will also flash if a hot battery is attached to the AC adapter/charger. Attaching an extremely hot battery to the AC adapter/charger is not recommended; it should be allowed to cool down before being attached.
9. Do not short the battery's terminal.
10. Do not attempt to disassemble or modify the battery. There are no user serviceable parts inside.
11. Throwing the battery into a fire or exposing the battery to excessive heat — over 149°F (65°C) could be hazardous.
12. Set the mark switch of any battery which has already been charged to red as shown in the figure. This lets you discriminate between charged and uncharged batteries easily .

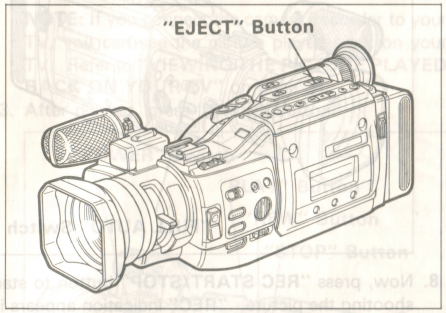


INSERTION AND REMOVAL OF CASSETTES

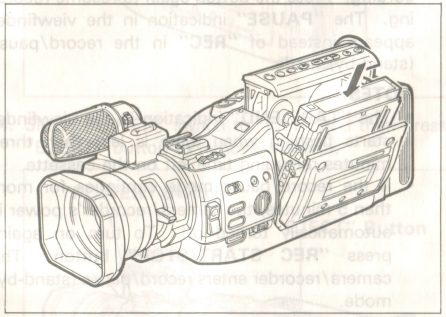
Before inserting or removing a cassette, be sure to connect the power source. When a power source is connected, the cassette can be ejected and removed whether the power is on or off.

■ **Insertion**

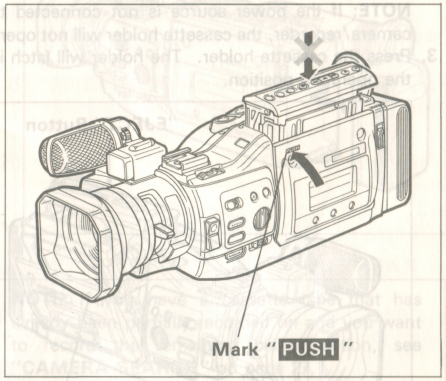
1. Press the **"EJECT"** button.
   The cassette holder will open.



2. Insert a cassette so the transparent window is toward you and the arrow toward the cassette holder. Slide the cassette into cassette holder as far as it will go.



3. Press the cassette holder.
   Push the section marked "PUSH" of the holder until a click is heard.
   The camera/recorder will automatically close the top of the cassette compartment. Do not press the door down, or you may damage your camera/recorder.

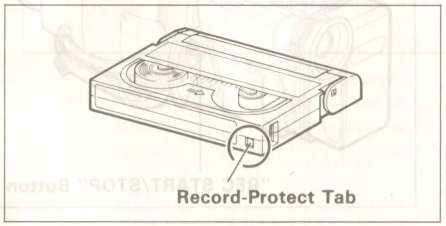


■ **Removal**

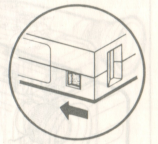
Press the **"EJECT"** button and remove the cassette.

8mm Video Cassette

An 8mm Video Cassette has a record-protect tab on the side of the cassette that can be slid to prevent accidental erasure of recorded material.



To prevent accidental erasure, slide the record-protect tab in the direction of the arrow until the red tab is completely visible.

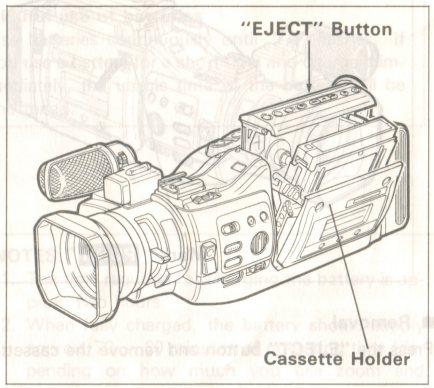


To record on the cassette again, slide the record-protect tab in the direction of the arrow. The red tab will disappear behind the cassette case.

MAKING A SAMPLE CAMERA RECORDING

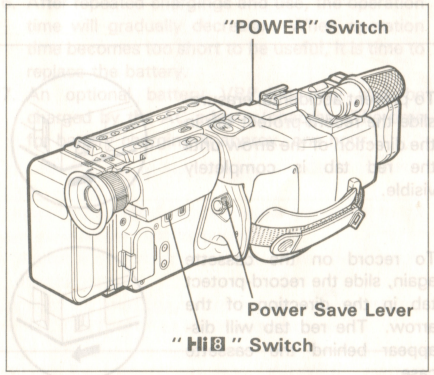
1. Connect the POWER SOURCE. (See pages 11 and 12.)
2. Press **"EJECT"** button and insert the cassette so the transparent window is toward you and the arrow toward the cassette holder. Slide the cassette into cassette holder as far as it will go.

   NOTE: If the power source is not connected to camera/recorder, the cassette holder will not open.
3. Press the cassette holder. The holder will latch in the operating position.



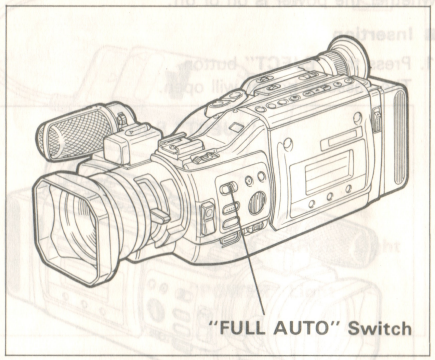
4. Set the "Hi8" switch to **"AUTO"**.
5. Set the power save lever to **"NORMAL"**.
6. Slide **"POWER"** switch to **"CAM"**. The camera/recorder will enter record/pause mode automatically.

   NOTE: If the red record-protect tab on the cassette is closed or no cassette is inserted, the **"TAPE"** indication in the viewfinder flashes for several seconds and the camera/recorder will not enter record/pause mode.



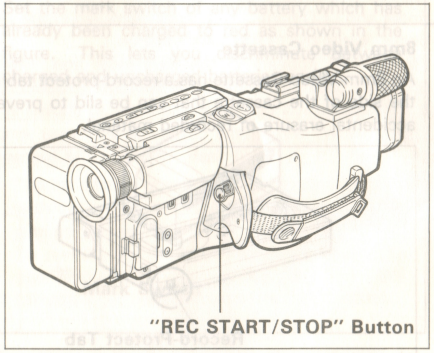
7. Set **"FULL AUTO"** switch to **"ON"**.

   NOTE: See page 30 for **"EYEPIECE ADJUSTMENT"**.



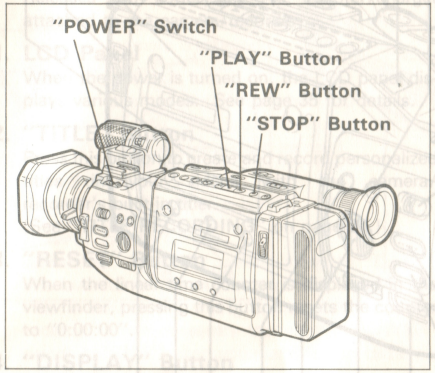
8. Now, press **"REC START/STOP"** button to start shooting the picture. **"REC"** indication appears in the viewfinder and you are now recording the picture you see through the viewfinder.
9. Press **"REC START/STOP"** button to stop recording. Press the button again to resume recording. The **"PAUSE"** indication in the viewfinder appears instead of **"REC"** in the record/pause (stand-by) mode.

   NOTES:
   - The **"TAPE END"** indication in the viewfinder starts flashing when there is less than three minutes recording time left on the cassette.
   - If the record/pause mode continues for more than 5 minutes, the camera/recorder's power is automatically turned off. To turn on again, press **"REC START/STOP"** button. The camera/recorder enters record/pause (stand-by) mode.

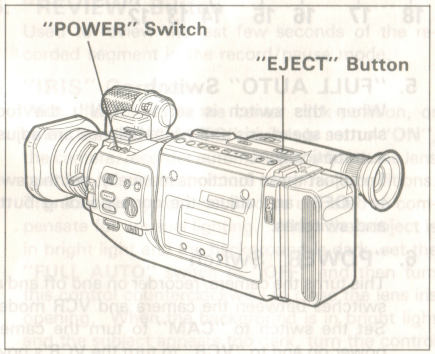


10. After recording, slide **"POWER"** switch to **"VCR"**, and the camera/recorder will be now in the stop mode.
11. Press **"REW"** button. The tape will be rewound to the beginning.
12. Press **"PLAY"** button. The picture you just recorded will be seen through the viewfinder and sound can be heard by headphones (not supplied).

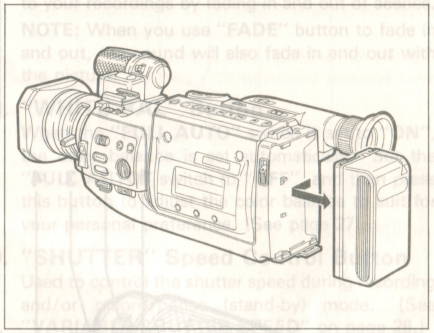
    NOTE: If you connect the camera/recorder to your TV, you can see the picture played back on your TV. Refer to **"VIEWING THE PICTURE PLAYED BACK ON YOUR TV"** on page 36.
13. After playing, press **"STOP"** button.



14. Slide **"POWER"** switch to **"OFF"** and then press **"EJECT"** button to remove cassette.



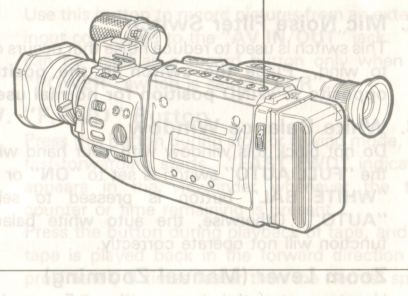
15. Always remove the power source from the camera/recorder after use.



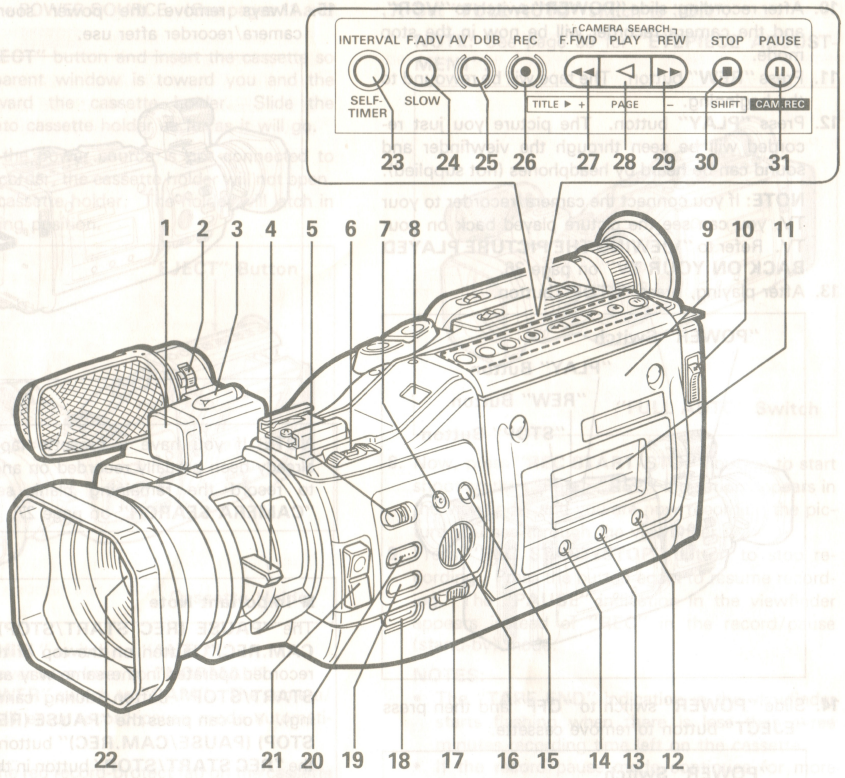
NOTE: If you have a cassette tape that has already been partially recorded on and you want to record the remaining blank section, see **"CAMERA SEARCH"** on page 27.

■ **Important Note**

The **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** button on the top of the camera/recorder operates in the same way as the **"REC START/STOP"** button (during camera recording). You can press the **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** button in place of the **"REC START/STOP"** button in the following pages.

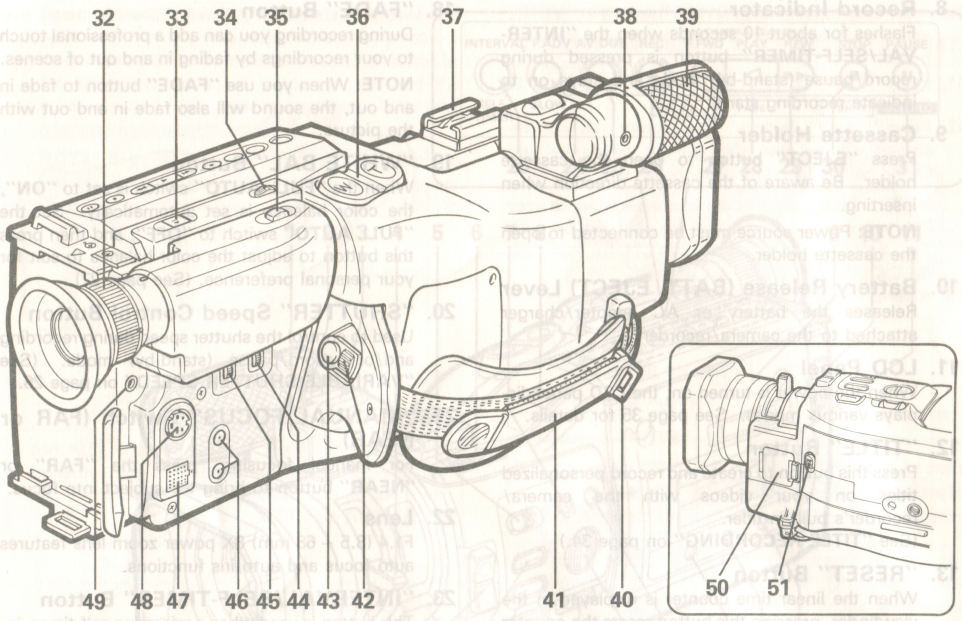


IDENTIFICATION AND OPERATION OF CONTROLS



1. **Infrared ray receiving section**
   Receives infrared rays from the remote control unit.
2. **Mic Noise Filter Switch**
   This switch is used to reduce noise that occurs due to wind. **Place the switch in the position opposite to WIND position for normal use.**
3. **White Balance Window**
   Do not block this window with your hand when the **"FULL AUTO"** switch is set to **"ON"** or the **"WHITE BAL"** button is pressed to select **"AUTO"**. Otherwise, the auto white balance function will not operate correctly.
4. **Zoom Lever (Manual Zooming)**
   Use to control the zoom setting. For a given camera-subject distance, the subject will appear 8X larger at the tele position than at the wide position. Just rotate the zoom lever for a tele angle (T) or wide angle (W) picture.
5. **"FULL AUTO" Switch**
   When this switch is set to **"ON"**, the focus, shutter speed, iris and white balance are adjusted automatically.
   To adjust these functions manually, set this switch to **"OFF"** and adjust the corresponding buttons and switches.
6. **"POWER" Switch**
   This turns the camera/recorder on and off and also switches between the camera and VCR modes.
   Set the switch to **"CAM"** to turn the camera's power on and to **"VCR"** to turn the VCR's power. Press and hold the small red button in the switch to switch it.
7. **"DATE/TIME" Button**
   Press this button to display the date and clock in the viewfinder.
   Whenever the date and clock appear in the viewfinder, they will be recorded on the tape.

8. **Record Indicator**
   Flashes for about 10 seconds when the **"INTERVAL/SELF-TIMER"** button is pressed during record/pause (stand-by) mode and stays on to indicate recording starts.
9. **Cassette Holder**
   Press **"EJECT"** button to open the cassette holder. Be aware of the cassette direction when inserting.
   NOTE: Power source must be connected to open the cassette holder.
10. **Battery Release (BATT. EJECT) Lever**
    Releases the battery or AC adapter/charger attached to the camera/recorder.
11. **LCD Panel**
    When the power is turned on, the LCD panel displays various modes. See page 35 for details.
12. **"TITLE" Button**
    Press this button to create and record personalized titles on your videos with the camera/recorder's built-in titler.
    (See **"TITLE RECORDING"** on page 34.)
13. **"RESET" Button**
    When the linear time counter is displayed in the viewfinder, pressing this button resets the counter to "0:00:00".
14. **"DISPLAY" Button**
    When this button is pressed, the displays in the viewfinder and LCD panel will change in sequence.
15. **"REVIEW" Button**
    Used to review the last few seconds of the recorded segment in the record/pause mode.
16. **"IRIS" Control**
    With this control in the center click position, or when the **"FULL AUTO"** switch is set to **"ON"**, the camera/recorder automatically adjusts the lens opening for the best picture in normal conditions. The auto iris system can also be adjusted to compensate for unusual lighting. When the subject is in bright light and the background is dark, set the **"FULL AUTO"** switch to **"OFF"** and then turn this control counterclockwise to close the lens iris opening. When the background is in bright light and the subject appears too dark, turn the control clockwise to open the lens iris.
17. **"FOCUS" Switch**
    Set this switch to the **"AUTO"** position for automatic focusing, and to the **"MAN"** position for focusing with the **"MANUAL FOCUS"** switch.
    Auto focusing can also be performed during the manual focus mode by pressing and moving this switch to the left.
18. **"FADE" Button**
    During recording you can add a professional touch to your recordings by fading in and out of scenes.
    NOTE: When you use **"FADE"** button to fade in and out, the sound will also fade in and out with the picture.
19. **"WHITE BAL" Button**
    When the **"FULL AUTO"** switch is set to **"ON"**, the color balance is set automatically. Set the **"FULL AUTO"** switch to **"OFF"**, and then press this button to adjust the color balance to suit for your personal preference. (See page 27).
20. **"SHUTTER" Speed Control Button**
    Used to control the shutter speed during recording and/or record/pause (stand-by) mode. (See **"VARIABLE SHUTTER SPEED"** on page 26.)
21. **"MANUAL FOCUS" Switch (FAR or NEAR)**
    For manual focusing, press the **"FAR"** or **"NEAR"** button to bring the subject into focus.
22. **Lens**
    F1.4 (8.5 ~ 68 mm) 8X power zoom lens features auto focus and auto iris functions.
23. **"INTERVAL/SELF-TIMER" Button**
    This button is used when performing self-timer, interval and one-shot recording. See pages 30 and 31.
24. **"F.ADV/SLOW" Button**
    Press this button during play to view a slow motion picture. Press this button during still play, one frame is advanced each time the button is pressed.
25. **"AV DUB" Button**
    This button is used to record new audio and video in place of existing audio and video. See page 32.
26. **"REC" Button**
    Use this button to record pictures from an external input connected to the **"AV IN/OUT"** jack. This can be used as a record button only when the **"POWER"** switch is set to **"VCR"**.
27. **"F.FWD" Button**
    Press this button during stop or rewind mode, and fast-forwarding starts. **"FAST FWD"** indication appears in the viewfinder whenever the tape counter or time remaining is present.
    Press the button during playback of tape, and the tape is played back in the forward direction approximately 9 times faster than the normal speed to confirm the recorded content.
    Press **"PLAY"** button to return to normal playback mode or press **"STOP"** button to stop tape movement.
    NOTE: You can also visually scan forward when the camera/recorder is record/pause (stand-by) mode by pressing and holding this button.



28. "PLAY" Button
Used for playback of tape.

NOTE: When the camera/recorder is record/pause (stand-by) mode, pressing and holding this button will play the tape at normal speed.

29. "REW" Button
Press this button during stop or fast forward mode, and fast-rewinding starts. **"REWIND"** indication appears in the viewfinder whenever the tape counter or time remaining is present. Press the button during playback of tape, and the tape is played back in the rewind direction approximately 7 times faster than the normal speed to confirm the recorded contents.
Press **"PLAY"** button to return to normal playback mode or press **"STOP"** button to stop tape movement.

NOTE: You can also visually scan backward when the camera/recorder is record/pause (stand-by) mode by pressing and holding this button.

30. "STOP" Button
The **"STOP"** button is used to stop playback, rewind, and fast forward operations. The **"STOP"** button has no effect during camera record operation.

31. "PAUSE (REC START/STOP) (PAUSE/CAM.REC)" Button
When this button is pressed during recording, the tape stops and the camera/recorder enters the record/pause (stand-by) mode. When this button is pressed again, the tape runs to resume recording. This button may be also used to display a still picture during playback mode.

32. Diopter Control
To use the electronic viewfinder without eyeglasses on, turn this control ring for your optimum focus adjustment.

33. "EJECT" Button
Operates with **"POWER"** either on or off, if a power source is connected to the camera/recorder.

34. "MIC MIX" Switch
This switch lets you add additional comments (or music) to a tape while you are copying a tape from your camera/recorder onto another VCR.

35. "EVF RELEASE" Button
Press and hold this button to release or to set the EVF (Electronic Viewfinder) back to its original position.

36. Power Zoom Switch
This switch performs zooming electrically.

"W": Picture becomes wider gradually.
"T": Picture becomes telescopic gradually.

37. Accessory Shoe
Used to attach the lightweight video accessory.

38. "MIC" Jack
Connect an external microphone here to record sound from the external microphone.
NOTE: Connecting an external microphone automatically switches off the built-in microphone.

39. Stereo Microphone
Sensitive to source coming from the direction in which the camera is pointed.

40. Lens Cap Tab
Place the lens cap on this tab when you are ready to record a scene. The tab also prevents the lens cap from swinging around on its cord.

41. Hand Strap
Adjust to best fit to your hand.

42. Power Save Lever
When the **"POWER"** switch is set to **"CAM"**, this lever turns the camera's power on and off. This is convenient during camera recording because it is not necessary to set the **"POWER"** switch to **"OFF"** when you want to turn camera's power off and then on again.

43. "REC START/STOP" Button
This button is used to control the camera/recorder. When this button is pressed with the camera/recorder set to the recording mode, the tape runs to start recording. **"REC"** appears in the viewfinder.
When this button is pressed again, **"PAUSE"** appears instead of **"REC"** and the tape stops and the camera/recorder enters the record/pause (stand-by) mode.

44. "EDIT" Switch
When copying a tape onto another VCR, set this switch to **"ON"**.
The copied tape will provide clearer picture.

45. " Hi8 " Switch
Use to select **Hi8** or normal **8** for recording. It has no effect during playback. Normally set it to **"AUTO"**. **" Hi8 "** appears in the viewfinder and LCD panel when the camera/recorder is recording or playing back in **Hi8** mode.

46. "DATE/TIME" Set Buttons
These buttons are used to set the clock (time and date) in your camera/recorder so it can be recorded on your tapes for future reference. (See page 22.)

47. "AV IN/OUT" Jack
Use the AV stereo output cord (provided) to connect this jack to a TV to view the pictures played back by the camera/recorder.
Use the AV stereo input cord (optional) to connect this jack to a TV or VCR to record pictures from the VCR or TV.

48. "S VIDEO OUT" jack.
Use this connector jack when you want to send the video signal out to the TV or the VCR having an S VIDEO IN jack.

NOTE: This connector allows you to take full advantage of the new recording format.

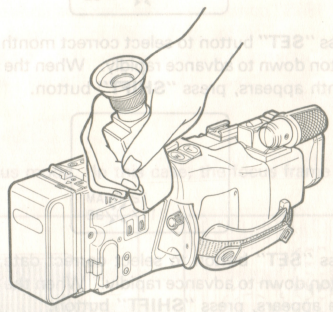
49. "PHONES" Jack
Sound being recorded by the microphone or played back may be monitored by attaching headphones (not supplied) to this jack.

50. Date/Time Battery Compartment
Pull the tab to open the cover and install the date/time battery (provided).

51. "HIGH GAIN" Switch
Set this switch to **"ON"** and set the **"FULL AUTO"** switch to **"OFF"** when shooting in a dark place such as outdoors at night. You can record the subject as a bright picture.

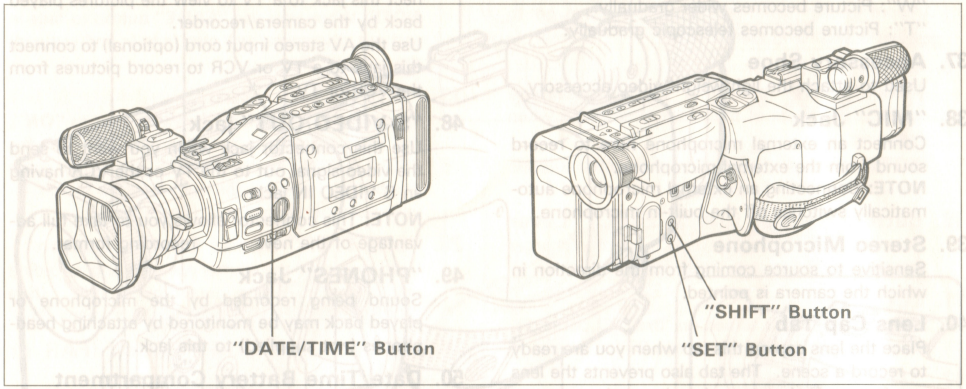
NOTE: This switch has no effect in a bright place.

CAUTION:
Do not hold the unit by the electronic viewfinder when carrying as this could cause a malfunction.

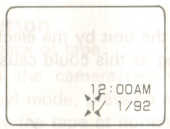


DATE/TIME SETTING

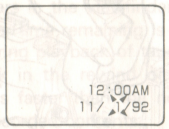
The date and time can be recorded on your tapes to act as a handy reference when viewing them at a later time. Use the following procedure to set up this display for the current date and time.



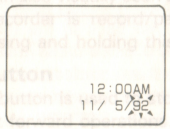
1. Load the camera/recorder's date/time battery as described on page 10.
2. Slide the **"POWER"** switch to **"CAM"** while holding the small red button in the **"POWER"** switch down.
3. Place the power save lever to **"NORMAL"**.
4. Press **"DATE/TIME"** button.
   Date and time appear in the viewfinder and **"1"** flashes.



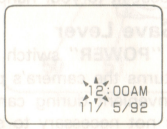
5. Press **"SET"** button to select correct month. Hold button down to advance rapidly. When the correct month appears, press **"SHIFT"** button.



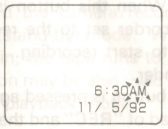
6. Press **"SET"** button to select correct date. Hold button down to advance rapidly. When the correct date appears, press **"SHIFT"** button.



7. Press **"SET"** button to select year, and then press **"SHIFT"** button.



8. Press **"SET"** button as many times as may be required to select correct hour, and then press **"SHIFT"** button.
9. Repeat steps 8 to select minute and AM/PM.



10. After setting AM or PM, press **"SHIFT"** button again to erase the flashing cursor and start the internal clock.

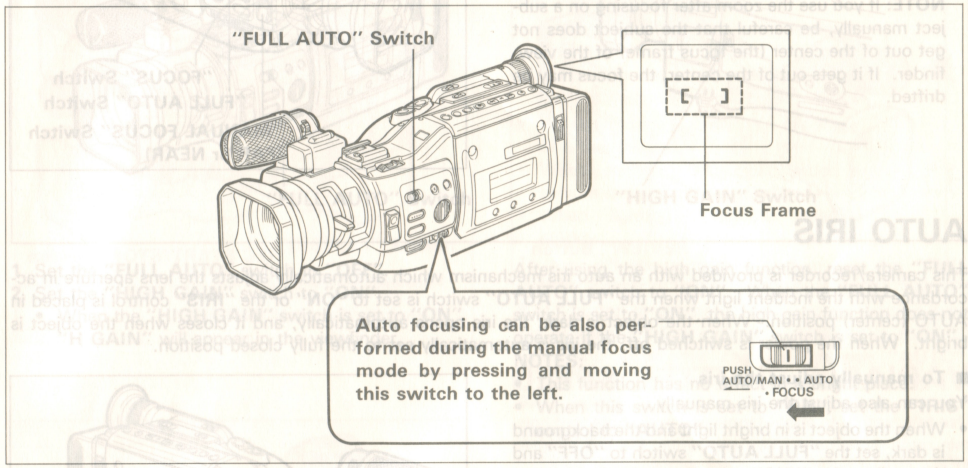
NOTE:

- To correct date/time information during programming or after starting the date/time, press **"SHIFT"** button until the incorrect digit is flashing. Then use **"SET"** button to enter the correct digit.
- The date/time graphics will be recorded whenever they appear in the viewfinder. To display date and time together, press **"DATE/TIME"**. To display date only, press **"DATE/TIME"** again. Pressing **"DATE/TIME"** a third time removes both graphics.

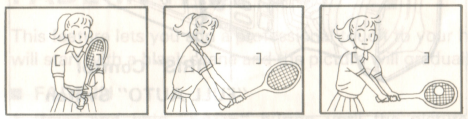
AUTO FOCUS

With the **"FULL AUTO"** switch is set to **"ON"** or the **"FOCUS"** switch is set to **"AUTO"** position, ordinary objects are automatically in optimum focus.

- When the **"FULL AUTO"** switch is set to **"ON"** or the **"FOCUS"** switch is set to **"AUTO"**, a focus frame [ ] will appear in the viewfinder.
  NOTE: If it does not appear, press the **"DISPLAY"** button.
- The subject in the focus frame [ ] will be focused.


"FULL AUTO" Switch
Focus Frame
Auto focusing can be also performed during the manual focus mode by pressing and moving this switch to the left.
PUSH
AUTO/MAN • • AUTO
• FOCUS

When the subject moves out of the focus frame [ ], the focus frame will expand automatically and the subject will continue to be in focus.



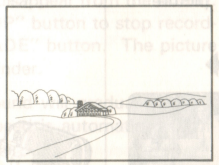
NOTE: If the contrast behind the subject is sharp when the subject moves out of the focus frame [ ], the focus frame may not expand.

If the subject approaches the lens when set to telephoto, the lens is zoomed in the wide-angle direction and a subject down to 0 mm from the lens is brought into focus automatically.

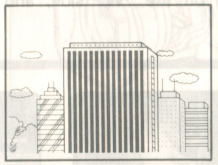
■ OBJECTS HARD TO AUTO FOCUS

The following objects may not be brought into focus in the auto focus mode. In this case, the focus frame [ ] will flash to warn you. Focus manually.

① Too bright objects such as the sun or objects such as a car's body or water surface that reflects light



② Objects with no contrast such as a blue sky



③ Objects with repeating patterns

④ Object in far and near positions at the same time

⑤ Objects moving frequently

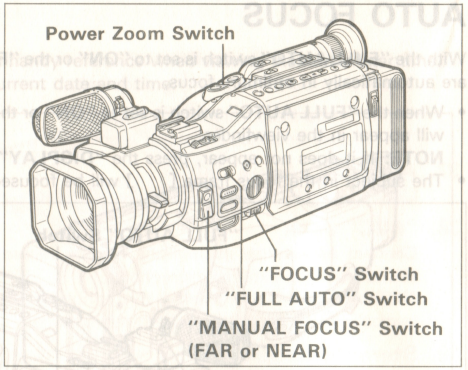
⑥ When using a special effects filter

⑦ Very dark objects

■ **MANUAL FOCUS**

1. Set "**FULL AUTO**" switch to "**OFF**".
2. Set "**FOCUS**" switch to "**MAN**" position to display "**MN**" in the viewfinder.
   - When "**MN**" is displayed in the viewfinder, you can adjust the focus manually.
3. Focus on the object by pressing the "**MANUAL FOCUS**" switch (**FAR** or **NEAR**).

NOTE: If you use the zoom after focusing on a subject manually, be careful that the subject does not get out of the center (the focus frame) of the viewfinder. If it gets out of the center, the focus may be drifted.



AUTO IRIS

This camera/recorder is provided with an auto iris mechanism which automatically adjusts the lens aperture in accordance with the incident light when the "**FULL AUTO**" switch is set to "**ON**" or the "**IRIS**" control is placed in AUTO (center) position. When the object is dark, the iris opens automatically, and it closes when the object is bright. When the power is switched off, the iris is automatically set to the fully closed position.

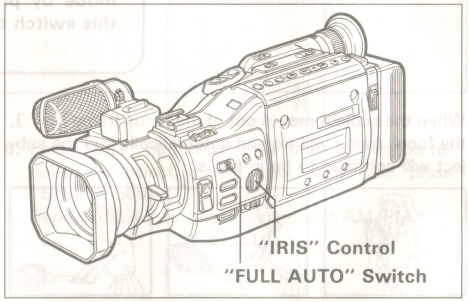
■ **To manually adjust the iris**

You can also adjust the iris manually.

- When the object is in bright light and the background is dark, set the "**FULL AUTO**" switch to "**OFF**" and then adjust the "**IRIS**" control counterclockwise to narrow the iris opening.
- When the background is in bright light and the object appears to be too dark, set the "**FULL AUTO**" switch to "**OFF**" and then adjust "**IRIS**" control clockwise to widen the iris opening.

NOTES:

- The "**IRIS**" control has three click positions on either side of the center click position. Always set the "**IRIS**" control to a click position. If it is set to a position other than a click position, the iris cannot be corrected.

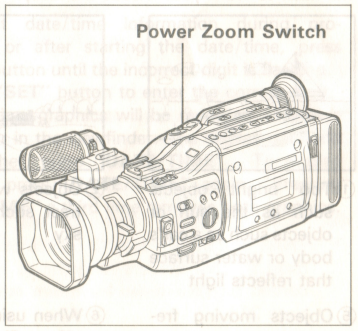


- After iris correction, set the "**FULL AUTO**" switch to "**ON**" or the "**IRIS**" control to the AUTO (center) position.

POWER ZOOM

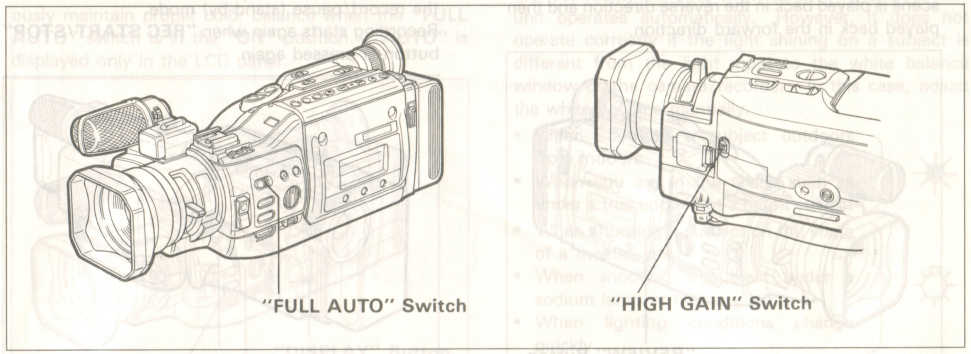
- Press power zoom switch on the "**W**" side, and the picture gradually widens.

- Press power zoom switch on the "**T**" side, and the picture gradually becomes telescopic.



HIGH GAIN

This function raises the sensitivity of the camera/recorder and allows the recording of a dark scene outdoors at night as a bright picture.



1. Set the "**FULL AUTO**" switch to "**OFF**".
2. Set the "**HIGH GAIN**" switch to "**ON**".
   - When the "**HIGH GAIN**" switch is set to "**ON**", "**H GAIN**" will appear in the viewfinder.

After using the high gain function, reset the "**FULL AUTO**" switch to "**ON**". When the "**FULL AUTO**" switch is set to "**ON**", the high gain function does not operate if the "**HIGH GAIN**" switch is set to "**ON**".

NOTES:

- This function has no effect in a bright place.
- When this switch is set to "**ON**", set the "**IRIS**" control to "**AUTO**".

FADE IN FADE OUT

This feature lets you add a professional touch to your home recordings. When you fade into a scene, the recording will start with a blank scene and the picture will gradually appear. The picture gradually disappears when fading out.

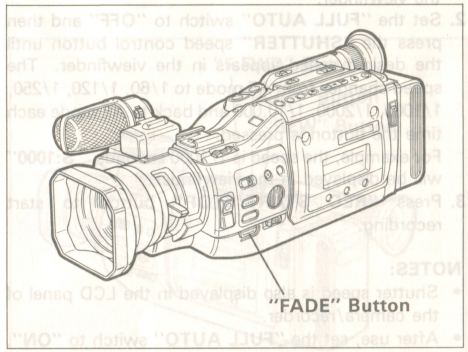
■ **FADE-IN**

1. Press and hold "**FADE**" button until the picture fades out, and then press "**REC START/STOP**" button to start recording.
2. Release "**FADE**" button. After a few seconds the picture will gradually appear on a blank screen.

■ **FADE-OUT**

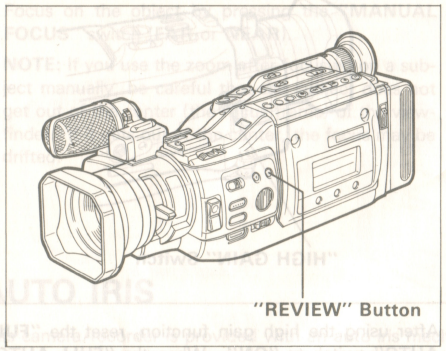
1. Press and hold "**FADE**" button during recording. The picture will gradually disappear from the screen.
2. Press "**REC START/STOP**" button to stop recording, and then release "**FADE**" button. The picture will reappear in the viewfinder.

NOTE: Both picture and sound will gradually appear and disappear. The fade speed is automatically controlled by the camera/recorder.

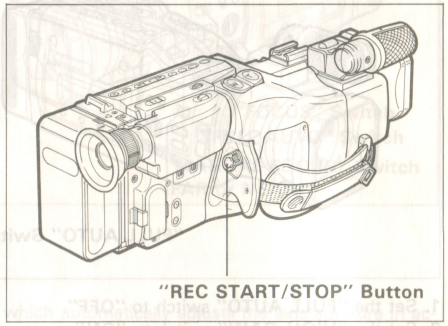


INSTANT REVIEW

1. In record/pause (stand-by) mode, press **"REVIEW"** button, and the last few seconds of the recorded scene is played back in the reverse direction and then played back in the forward direction.



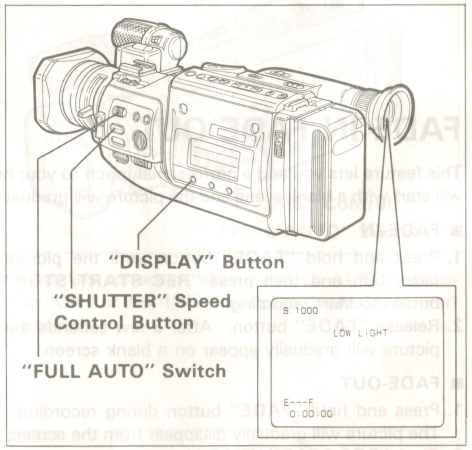
2. When the tape reaches the end of the scene you have just recorded, the camera/recorder returns to the record/pause (stand-by) mode.
Recording starts again when **"REC START/STOP"** button is pressed again.



VARIABLE SHUTTER SPEED

Use this feature to shoot tennis and golf shots that contain rapid movement. You can replay the still pictures at the crucial moments without any fluctuations.
Normally the program AE feature operates and selects the optimum shutter speed, 1/60, 1/120 or 1/250, according to the brightness of the subject when the **"FULL AUTO"** switch is set to **"ON"**. To increase the shutter speed, follow the procedure below.

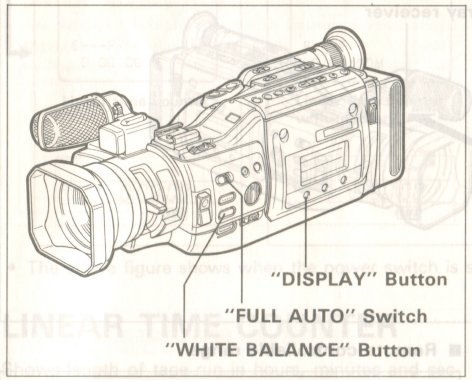
1. In record/pause (stand-by) or record mode, press **"DISPLAY"** button to display the shutter speed in the viewfinder.
2. Set the **"FULL AUTO"** switch to **"OFF"** and then press the **"SHUTTER"** speed control button until the desired speed appears in the viewfinder. The speed changes from AE mode to 1/60, 1/120, 1/250, 1/1000, 1/2000, 1/10,000 and back to AE mode each time the button is pressed.
For example, the speed is 1/1000 seconds, **"S:1000"** will be displayed in the viewfinder.
3. Press **"REC START/STOP"** button to start recording.



NOTES:
- Shutter speed is also displayed in the LCD panel of the camera/recorder.
- After use, set the **"FULL AUTO"** switch to **"ON"**.
- When there is low light, the **"LOW LIGHT"** indication appears in the viewfinder to warn you. In this case, reduce the shutter speed or use an additional light.
- When a tape that was recorded using the high speed shutter feature is played back, scenes changes will not be seen as a smooth motion.
- When recording under the illumination of fluorescent lamp, a mercury vapor lamp or a sodium lamp, flickering may occur.

AUTO-WHITE BALANCE

Your camera/recorder is equipped with a constant automatic white balance system which will continuously maintain proper color balance when the **"FULL AUTO"** switch is in the **"ON"** position. **"AUTO"** is displayed only in the LCD panel.



■ To manually adjust the white balance
In most cases, the auto white balance function of this unit operates automatically. However, it does not operate correctly if the light shining on a subject is different from the light input to the white balance window of the camera/recorder. In this case, adjust the white balance manually.

- When shooting a subject outdoors from indoors
- When you are in the shade such as under a tree and shoot a bright subject

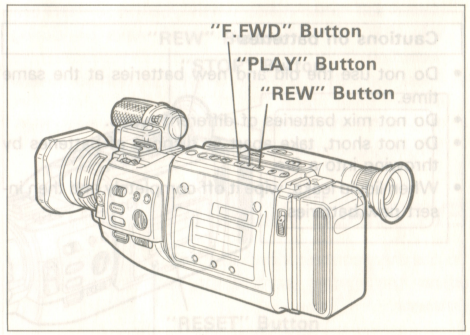
- When shooting a subject on the stage of a theater, etc.
- When shooting a subject under a sodium lamp or mercury lamp
- When lighting conditions change quickly

To turn off the automatic system, set the **"FULL AUTO"** switch to **"OFF"** and then press the **"WHITE BAL"** button to set the indication to the existing lighting conditions. The indication displayed in the LCD panel and viewfinder changes between **"AUTO"**, " ☼ " and " ✳ " each time you press the **"WHITE BAL"** button.

NOTES:
- Return the **"FULL AUTO"** switch to **"ON"** after use.
- If no indication appears in the viewfinder, press the **"DISPLAY"** button.

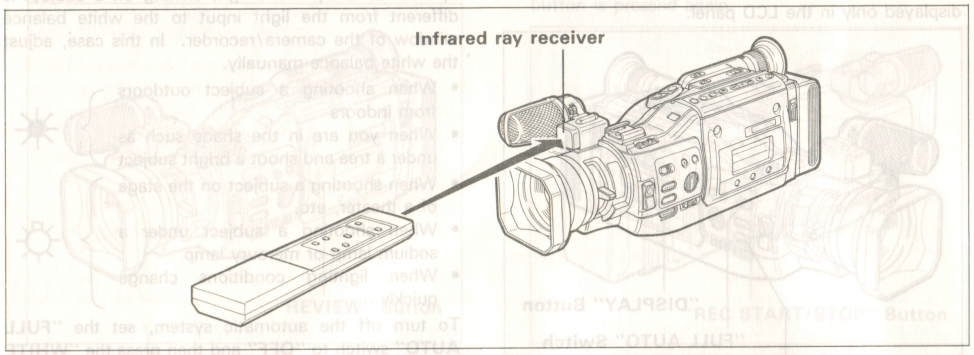
CAMERA SEARCH

The camera search feature allows you to search for the end of previously recorded material, or find a particular spot on your tape, to begin your editing, or recording new material. Camera search is used while the camera/recorder is in the record/pause (stand-by) mode. By holding down the **"F.FWD"**, **"REW"**, or **"PLAY"** button you can visually search or play your tape. Releasing the buttons (**"F.FWD"**, **"REW"**, or **"PLAY"**) immediately stops the tape at that position.



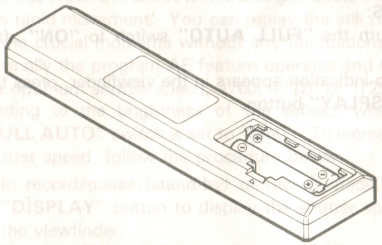
WIRELESS REMOTE CONTROL

You can operate the camera/recorder with the wireless remote control (provided) from a distance.
The buttons on the remote control have the same functions as the buttons with the same identifications on the camera/recorder.
Aim the remote control at the receiver of the camera/recorder.

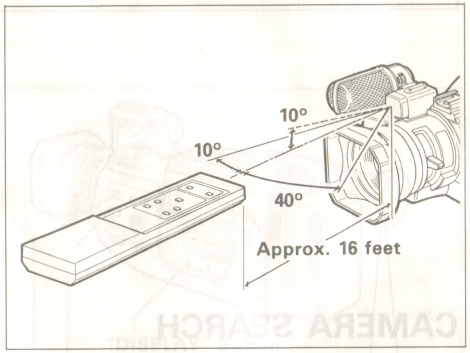


■ How to install the batteries

- Be sure to install two "AAA" size batteries before use.
- Be careful to install with correct polarity.



■ Remote controllable range



Cautions on batteries

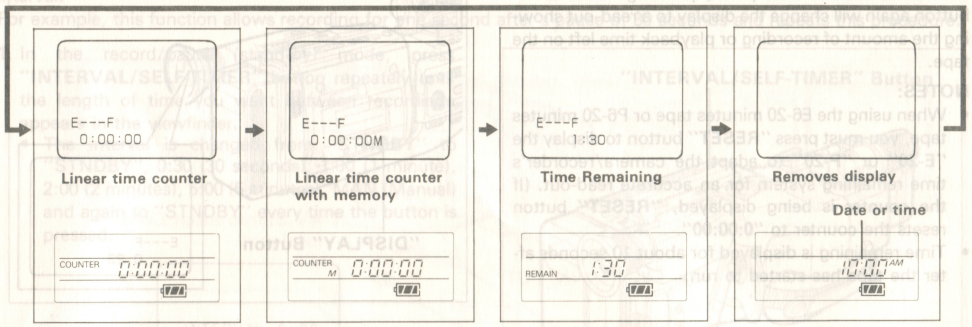
- Do not use the old and new batteries at the same time.
- Do not mix batteries of different types.
- Do not short, take apart or dispose of batteries by throwing into a fire.
- When liquid leaks, wipe it off completely and then insert new batteries.

Cautions on the remote control

- Use the remote control indoors. When the infrared ray receiver is exposed to direct sunlight or strong light such as that from artificial lighting, the remote control may not operate correctly.
- The remote control cannot be operated if there is an obstacle between the remote control and infrared ray receiver.
- When recording is started or stopped or play is switched to still play, the recording indicator lights momentarily; use this as a reference in operation.
- The start/stop button and pause button of the remote control have the same function.
- After 5 minutes in the record pause mode, the power save function cannot be released by the remote control.

DISPLAY BUTTON

When the **"DISPLAY"** button is pressed, the displays in the viewfinder and LCD panel will change as follows.



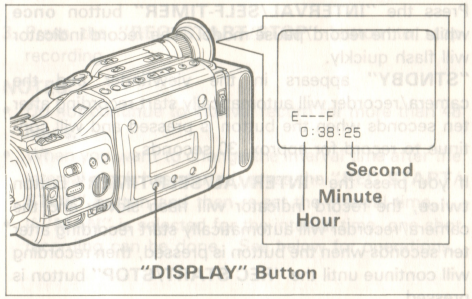
- The above figure shows when the power switch is set to **"VCR"**.

LINEAR TIME COUNTER

Shows length of tape run in hours, minutes and seconds. Press **"DISPLAY"** button to select the linear time counter display.
Load a cassette into the camera/recorder and perform recording or playback; the counter indicates the elapsed time.

NOTES:

- The linear time counter does not operate when nothing is recorded on the tape.
- Counter changes to 0:00:00 when cassette is ejected.

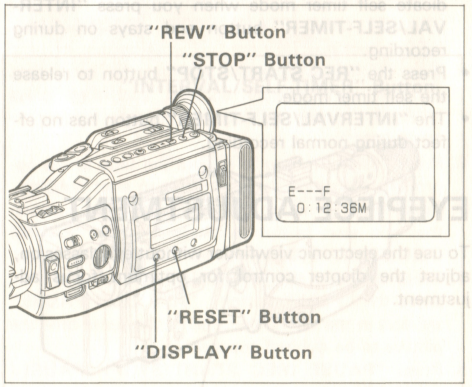


MEMORY

When the linear time counter with memory indication appears in the viewfinder or the LCD panel, a tape that is being rewound automatically stops when the counter reads approximately **"0:00:00M"**. This is useful if there is a section of tape you want to review immediately after recording or if you want to return to the same point several times in a row.

1. Press **"DISPLAY"** button until the linear time counter with memory is displayed.
2. Start playing or recording a tape.
3. At the point you want playback to start, press **"RESET"** button to reset the counter to **"0:00:00M"**.
4. Continue to play or record.
5. Press **"STOP"** button.
6. Press **"REW"** button. The tape will be rewound to the preselected point, at approximately **"0:00:00M"** indication.

NOTE: The tape will also stop approximately at **"0:00:00M"** during fast forward mode.

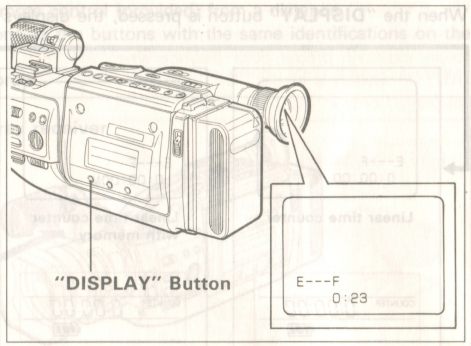


TIME REMAINING

When the linear time counter with memory is present in the viewfinder and LCD panel, pressing **"DISPLAY"** button again will change the display to a read-out showing the amount of recording or playback time left on the tape.

NOTES:

- When using the E6-20 minutes tape or P6-20 minutes tape, you must press **"RESET"** button to display the **"E-20"** or **"P-20"** to adapt the camera/recorder's time remaining system for an accurate read-out. (If the counter is being displayed, **"RESET"** button resets the counter to **"0:00:00"**.
- Time remaining is displayed for about 10 seconds after the tape has started to run.



SELF TIMER

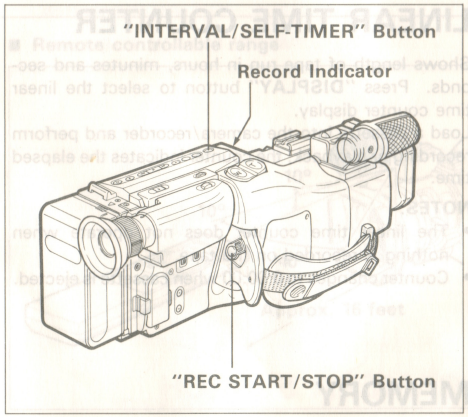
The self timer allows you to automatically start recording after about ten seconds.

Press the **"INTERVAL/SELF-TIMER"** button **once** while in the record/pause mode. The record indicator will flash quickly.
"STNDBY" appears in the viewfinder and the camera/recorder will automatically start recording after ten seconds when the button is pressed and will continue to record for approx. 30 seconds.

If you press the **"INTERVAL/SELF-TIMER"** button **twice**, the record indicator will flash slowly and the camera/recorder will automatically start recording after ten seconds when the button is pressed, then recording will continue until the **"REC START/STOP"** button is pressed.

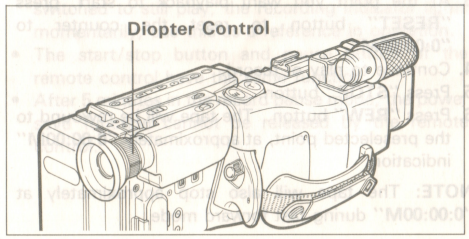
NOTES:

- Record indicator flashes for about 10 seconds to indicate self timer mode when you press **"INTERVAL/SELF-TIMER"** button and stays on during recording.
- Press the **"REC START/STOP"** button to release the self timer mode.
- The **"INTERVAL/SELF-TIMER"** button has no effect during normal recording.



EYEPIECE ADJUSTMENT

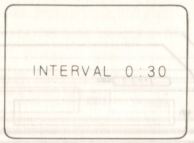
To use the electronic viewfinder without eyeglasses on, adjust the diopter control for optimum focus adjustment.



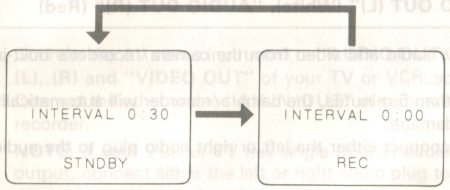
INTERVAL RECORDING

This function is convenient to record the blooming of flowers, etc. as it starts and stops recording at a predetermined interval.
For example, this function allows recording for one second after a pause of 30 seconds and repeats this procedure.

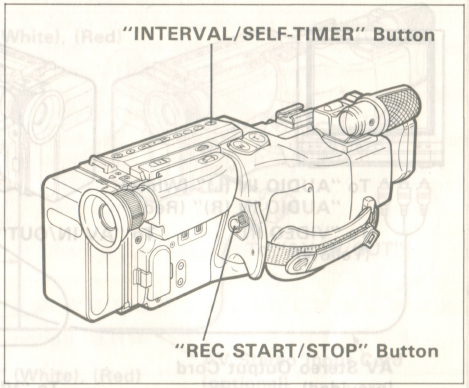
1. In the record/pause (stand-by) mode, press **"INTERVAL/SELF-TIMER"** button repeatedly until the length of time you want between recordings appears in the viewfinder.
   - The interval is changed from "STNDBY" to "STNDBY", 0:30 (30 seconds), 1:00 (1 minute), 2:00 (2 minutes), 5:00 (5 minutes), MAN (Manual) and again to "STNDBY" every time the button is pressed.



2. Press the **"REC START/STOP"** button.



   - The clock starts counting, and when it reaches **"0:00"**, a recording is performed for a second, and then the record/pause (stand-by) mode is entered. After 30 seconds, recording is repeated for another second.



3. Press the **"REC START/STOP"** button to stop recording.

NOTES:

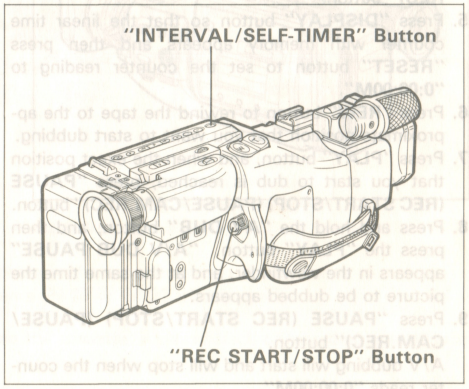
- Do not continue to interval record for more than 48 hours.
- When you want to change the interval time after the interval clock has started, press the **"REC START/STOP"** button and then re-set the interval time.
- If **"MAN"** is selected for the interval time, one shot recording can be done. See below for operations.

ONE SHOT RECORDING

This function is convenient to produce an animated video.
One shot (a few frames) each is recorded every time the **"REC START/STOP"** button is pressed. Shoot a doll, etc. while moving it slightly between shots to produce an animated video of your own.

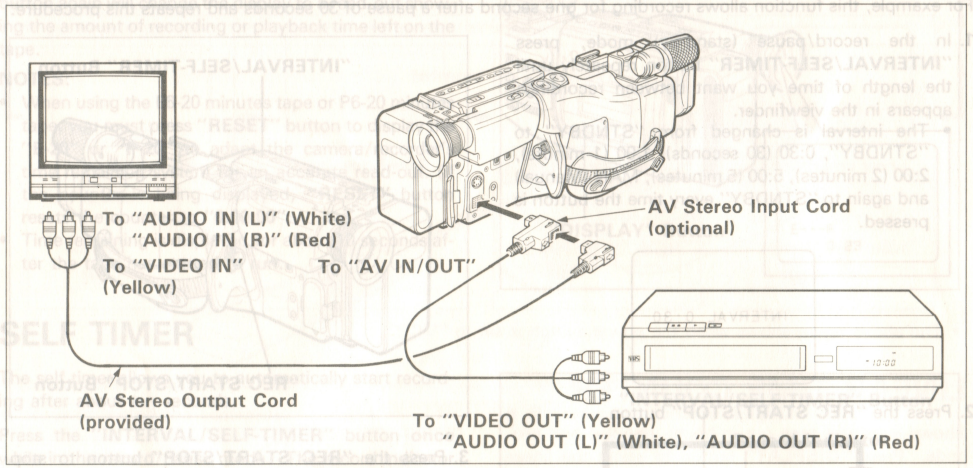
1. In the record/pause (stand-by) mode, press **"INTERVAL/SELF-TIMER"** button repeatedly to select **"INTERVAL MAN"**.
2. Press the **"REC START/STOP"** button.
   - One shot (a few frames) is recorded every time the button is pressed.
3. Press the **"INTERVAL/SELF-TIMER"** button so that **"INTERVAL MAN"** disappears to release the one shot recording.

NOTE: If the record/pause mode continues for more than 5 minutes, the camera/recorder's power is automatically turned off. To turn on again, press **"REC START/STOP"** button.



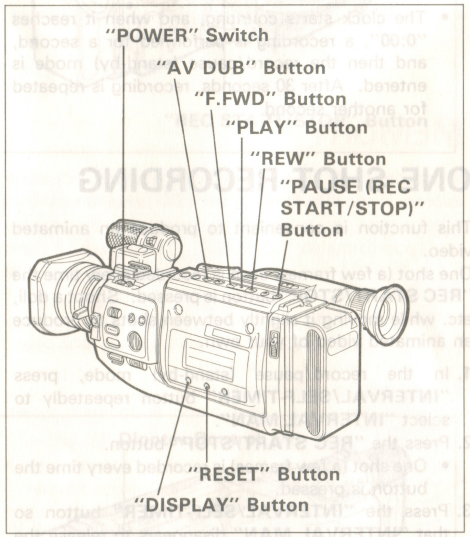
AUDIO/VIDEO DUBBING

Audio/video dubbing lets you record new audio and video from another VCR on a previously recorded tape in the camera/recorder.


To "AUDIO IN (L)" (White)
"AUDIO IN (R)" (Red)
To "VIDEO IN" (Yellow)
To "AV IN/OUT"
AV Stereo Input Cord (optional)
AV Stereo Output Cord (provided)
To "VIDEO OUT" (Yellow)
"AUDIO OUT (L)" (White), "AUDIO OUT (R)" (Red)

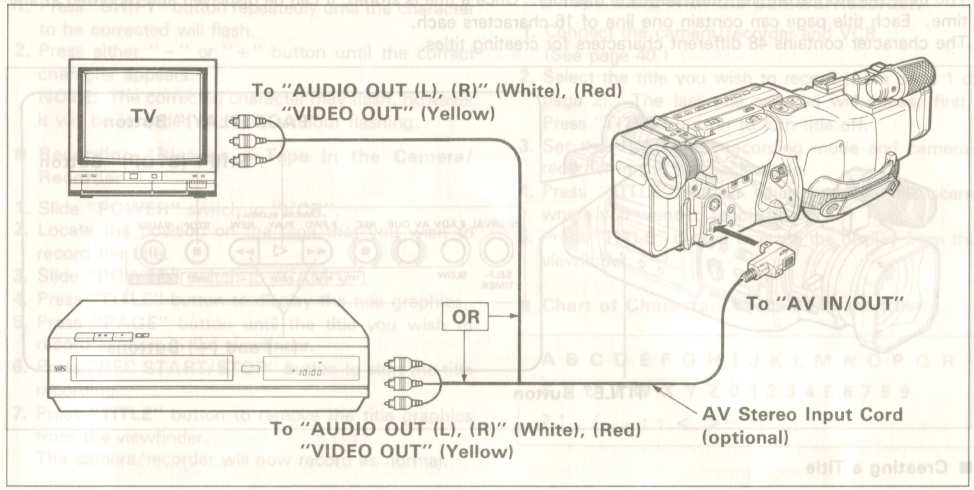
NOTES:
- If no video and audio plugs are connected, new audio and video from the camera/recorder's built-in microphone and camera is dubbed onto the tape.
- If the AV dub/pause mode continues for more than 5 minutes, the camera/recorder will automatically enter the stop mode to protect the tape from damage.
- If your VCR has a single (mono) audio output, connect either the left or right audio plug to the audio output on the VCR.

1. Insert a recorded tape.
   Be sure that the red record-protect tab is not closed.
2. Slide **"POWER"** switch to **"VCR"**.
3. Press **"PLAY"** button and then **"REW"** or **"F.FWD"** button to search to the approximate area on the tape where you want to begin your dub.
4. Press **"PLAY"** button again to search for the exact position that you want to stop dubbing, then press **"PAUSE (REC START/STOP) (PAUSE/CAM. REC)"** button.
5. Press **"DISPLAY"** button so that the linear time counter with memory appears and then press **"RESET"** button to set the counter reading to **"0:00:00M"**.
6. Press **"REW"** button to rewind the tape to the approximate position that you want to start dubbing.
7. Press **"PLAY"** button, and when the exact position that you start to dub is reached, press **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** button.
8. Press and hold the **"AV DUB"** button, and then press the **"PLAY"** button. **"A/V DUB PAUSE"** appears in the viewfinder, and at the same time the picture to be dubbed appears.
9. Press **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** button.
   A/V dubbing will start and will stop when the counter reads **"0:00:00M"**.

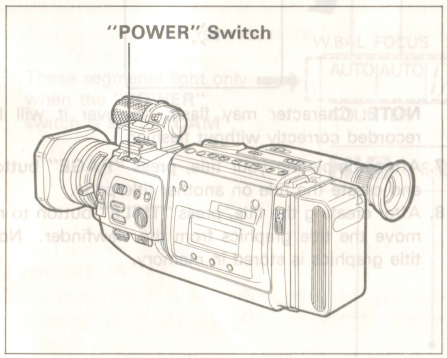


RECORDING TV PROGRAM

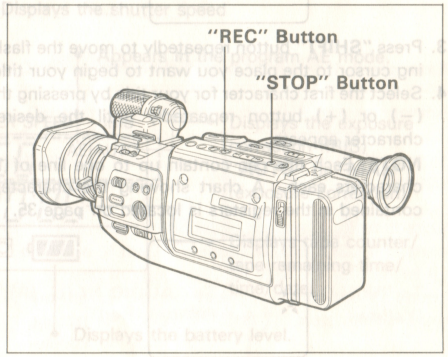
If your TV or VCR has video/audio out jacks, you can record the TV program with camera/recorder.



1. Connect the AV stereo input cord to **"AUDIO OUT" (L), (R)** and **"VIDEO OUT"** of your TV or VCR.
2. Connect the other end to **"AV IN/OUT"** of camera/recorder.
   NOTE: If your VCR or TV has single (mono) audio output, connect either the left or right audio plug to the audio output on the VCR or TV.
3. Insert the cassette.
   NOTE: Power source must be connected to the camera/recorder.
4. Slide the **"POWER"** switch of the camera/recorder to **"VCR"**.

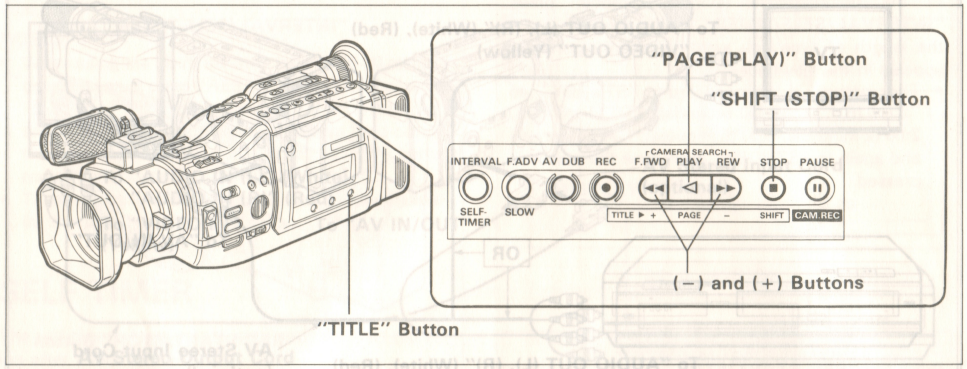


5. Turn on your TV or VCR and tune it to the channel you wish to record.
6. Press and hold down the **"REC"** button on the top of the camera/recorder for more than one second to start recording.
   NOTE: The **"REC START/STOP"** button cannot be used since the **"POWER"** switch is set to **"VCR"**.
7. Press **"STOP"** button to stop recording.



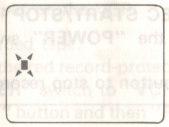
TITLE RECORDING

You can easily create and record personalized titles on your videos with the camera/recorder's built-in titler. The titler will store 2 different title pages in memory. Once a title is stored, it can be displayed and recorded at anytime. Each title page can contain one line of 16 characters each.
The character contains 48 different characters for creating titles.

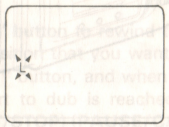


■ Creating a Title

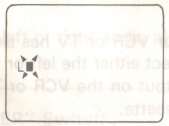
1. Attach a power source to the camera/recorder.
   NOTE: **"POWER"** switch may be set to **"VCR"** or **"CAM"**.
2. Press **"TITLE"** button. The flashing cursor will appear in the viewfinder.



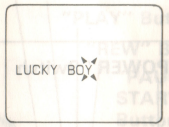
3. Press **"SHIFT"** button repeatedly to move the flashing cursor to the place you want to begin your title.
4. Select the first character for your title by pressing the (−) or (+) button repeatedly until the desired character appears.
   NOTE: Each title can contain up to one line of 16 characters each. A chart showing the characters contained in the registers is located on page 35.



5. After you have selected the first character, press **"SHIFT"** button to move the flashing cursor to the place you want the next character.



6. Repeat steps 4 and 5 until you have completed the title.



NOTE: Character may flash, however it will be recorded correctly without flashing.

7. After completing your title, press **"PAGE"** button and create the title on another title page.
8. After creating the title, press **"TITLE"** button to remove the title graphics from the viewfinder. Now title graphics is stored in memory.

■ Correcting Errors During Programming

1. Press **"SHIFT"** button repeatedly until the character to be corrected will flash.
2. Press either "−" or "+" button until the correct character appears.
   NOTE: The corrected character may flash, however it will be recorded correctly without flashing.

■ Recording Titles on a Tape in the Camera/Recorder

1. Slide **"POWER"** switch to **"VCR"**.
2. Locate the position on the tape that you wish to record the title.
3. Slide **"POWER"** switch to **"CAM"**.
4. Press **"TITLE"** button to display the title graphics.
5. Press **"PAGE"** button until the title you wish to record appears in the viewfinder.
6. Press **"REC START/STOP"** button to start the title recording.
7. Press **"TITLE"** button to remove the title graphics from the viewfinder.
   The camera/recorder will now record as normal.

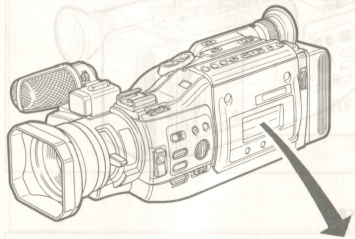
■ Recording Titles on Another VCR while playing a Tape Back with the Camera/Recorder.

1. Connect the camera/recorder and VCR.
   (See page 40.)
2. Select the title you wish to record (from page 1 or page 2). The last title selected will appear first. Press **"TITLE"** button to turn title off.
3. Set the VCR in the recording mode and camera/recorder in the playback mode.
4. Press **"TITLE"** button when you see the scene where you want to record the title.
5. Press **"TITLE"** button to erase the display from the viewfinder.

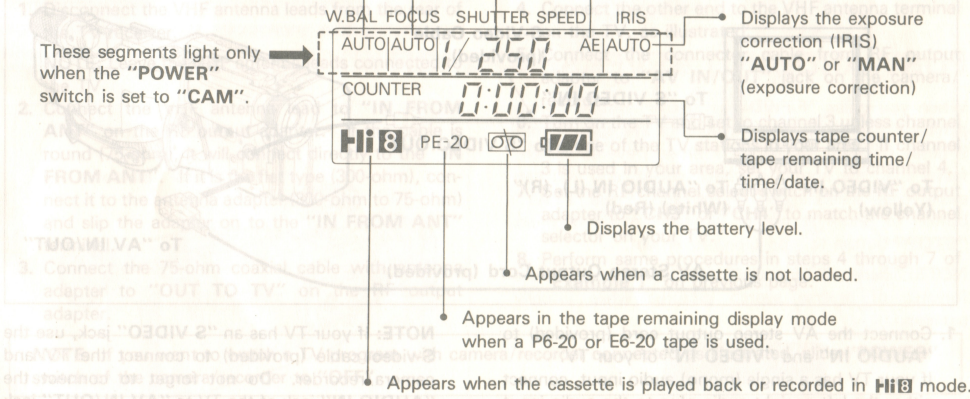
■ Chart of Characters available in the titler

A B C D E F G H I J K L M N O P Q R
S T U V W X Y Z 0 1 2 3 4 5 6 7 8 9
? ' . / , - : ; < > → ←

DISPLAY IN THE LCD PANEL



Displays white balance **"AUTO"** or " ☼ or ✳ " (manual)
Displays focus **"AUTO"** or **"MAN"**.
Displays the shutter speed
Appears in the program AE mode.



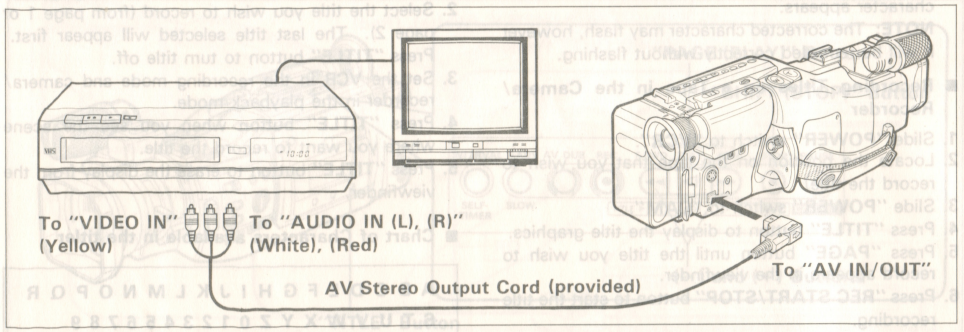
These segments light only when the **"POWER"** switch is set to **"CAM"**.

Displays the exposure correction (IRIS) **"AUTO"** or **"MAN"** (exposure correction)
Displays tape counter/ tape remaining time/ time/date.
Displays the battery level.
Appears when a cassette is not loaded.
Appears in the tape remaining display mode when a P6-20 or E6-20 tape is used.
Appears when the cassette is played back or recorded in **Hi8** mode.

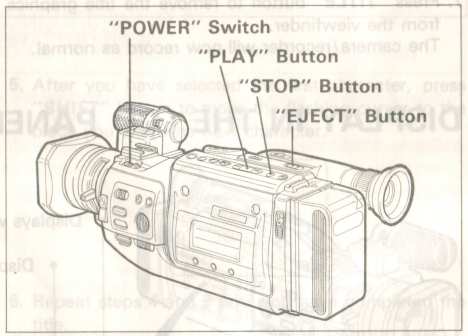
VIEWING THE PICTURE PLAYED BACK ON YOUR TV

To play back a tape recorded on your camera/recorder and view it on your TV receiver, you must connect the camera/recorder to the TV receiver using either AV output cord (provided) or RF output adapter (optional).

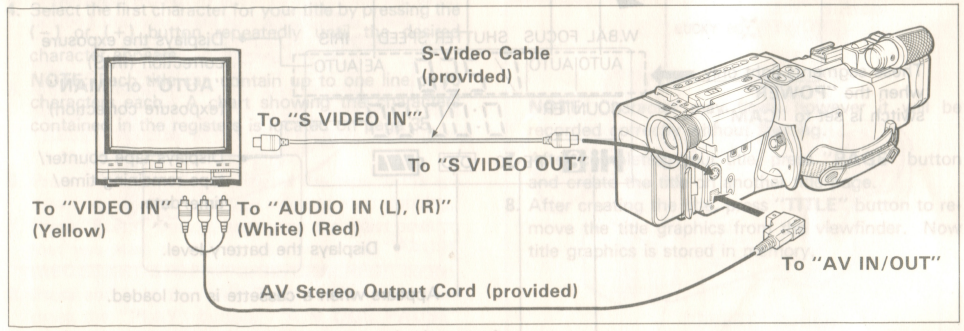
Example 1: If your TV is already connected to the VCR,



1. Connect the AV stereo output cord (provided) to **"AUDIO IN"** and **"VIDEO IN"** of your VCR.
   If your VCR has a single (mono) audio input, connect either the left or right audio plug to the audio input on the VCR.
2. Connect the other end of the AV stereo output cord to **"AV IN/OUT"** of your camera/recorder.
3. Select the **"LINE"** of your VCR.
4. Press **"EJECT"** button on the camera/recorder and then insert the cassette.
5. Slide **"POWER"** switch to **"VCR"**.
6. Press **"PLAY"** button.
7. After playing press **"STOP"** button.



Example 2: If your TV has "S VIDEO" or "VIDEO/AUDIO IN" jacks,

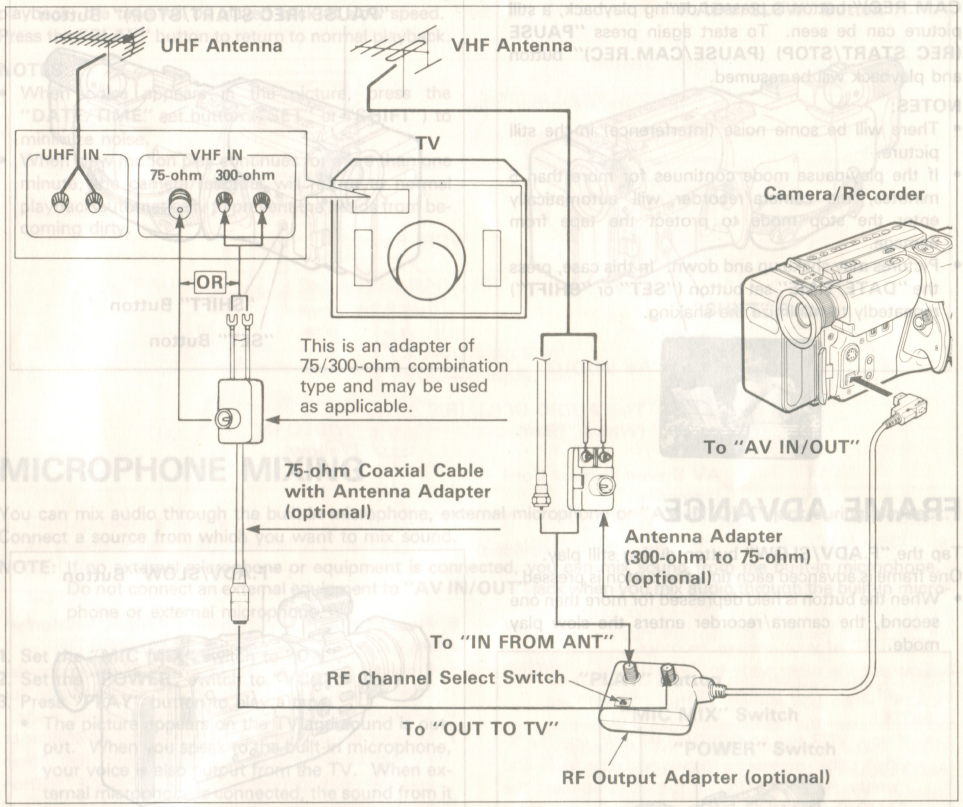

S-Video Cable (provided)
To "S VIDEO IN"
To "S VIDEO OUT"
To "VIDEO IN" (Yellow)
To "AUDIO IN (L), (R)" (White) (Red)
To "AV IN/OUT"
AV Stereo Output Cord (provided)

1. Connect the AV stereo output cord (provided) to **"AUDIO IN"** and **"VIDEO IN"** of your TV.
   If your TV has a single (mono) audio input, connect either the left or right audio plug to the audio input on the TV.
2. Connect the other end of the AV stereo output cord to **"AV IN/OUT"** of your camera/recorder.

NOTE: If your TV has an **"S VIDEO"** jack, use the S-video cable (provided) to connect the TV and camera/recorder. Do not forget to connect the **"AUDIO IN"** jack of the TV to **"AV IN/OUT"** jack of the camera/recorder.

3. Turn on TV.
4. Perform same procedures in steps 4 through 7 of **"Example 1"** above.

Example 3: If your TV is a regular TV,



1. Disconnect the VHF antenna leads from the rear of the TV receiver.

   NOTE: Leave the UHF antenna leads connected to the TV.
2. Connect the VHF antenna lead to **"IN FROM ANT"** on the RF output adapter. If the cable is round (75-ohm), it will connect directly to the **"IN FROM ANT"**. If it is the flat type (300-ohm), connect it to the antenna adapter (300-ohm to 75-ohm) and slip the adapter on to the **"IN FROM ANT"** terminal.
3. Connect the 75-ohm coaxial cable with antenna adapter to **"OUT TO TV"** on the RF output adapter.
4. Connect the other end to the VHF antenna terminal on the TV, as illustrated.
5. Connect the connector cable from RF output adapter to **"AV IN/OUT"** jack on the camera/recorder.
6. Turn on the TV and set to channel 3 unless channel 3 is one of the TV stations in your area. If channel 3 is used in your area, set your TV to channel 4.
7. Set the RF channel select switch on the RF output adapter to **"CH3"** or **"CH4"** to match the channel selector on your TV.
8. Perform same procedures in steps 4 through 7 of **"Example 1"** on previous page.

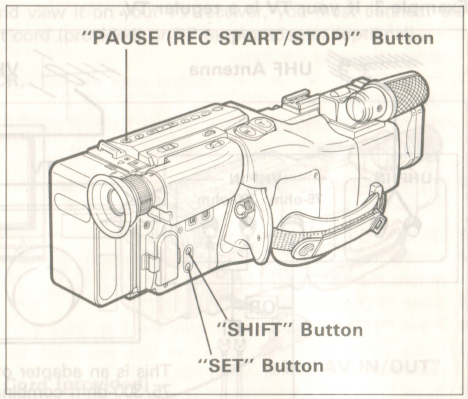
NOTE: If you want to watch a TV program with camera/recorder connected as illustrated, slide **"POWER"** switch of the camera/recorder to **"OFF"**.

STILL

When **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** button is pressed during playback, a still picture can be seen. To start again press **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** button and playback will be resumed.

NOTES:

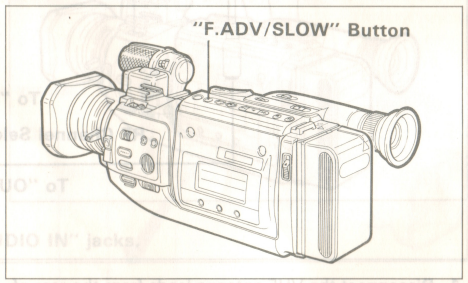
- There will be some noise (interference) in the still picture.
- If the play-pause mode continues for more than 5 minutes, the camera/recorder will automatically enter the stop mode to protect the tape from damage.
- Pictures may shake up and down. In this case, press the **"DATE/TIME"** set button (**"SET"** or **"SHIFT"**) repeatedly to minimize the shaking.



FRAME ADVANCE

Tap the **"F.ADV/SLOW"** button during still play. One frame is advanced each time the button is pressed.

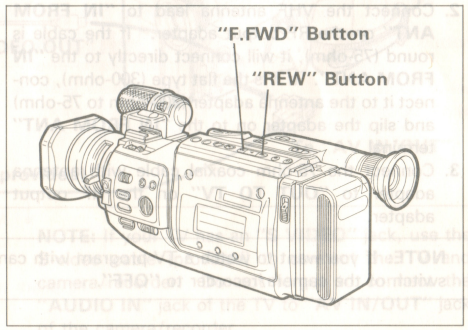
- When the button is held depressed for more than one second, the camera/recorder enters the slow play mode.



FORWARD AND REVERSE SEARCH

When you press **"F.FWD"** or **"REW"** button during playback, the tape will be played back at a speed about 9 times (forward search) or 7 times (reverse search) faster than the normal playback speed, and you can easily locate a certain spot on the tape. Press **"PLAY"** button to return to normal playback mode or press **"STOP"** button to stop tape movement.

NOTE: There will be some noise (interference) in the forward or reverse search pictures while visually scanning.

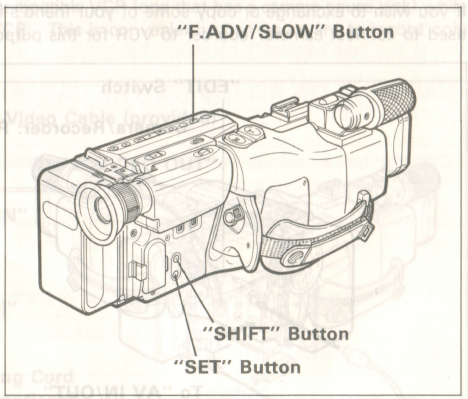


SLOW

When you press the **"F.ADV/SLOW"** button during playback, the tape will be played back at slow speed. Press the **"PLAY"** button to return to normal playback.

NOTES:

- When noise appears in the picture, press the **"DATE/TIME"** set button (**"SET"** or **"SHIFT"**) to minimize noise.
- When slow motion play continues for more than one minute, the camera/recorder will return to normal playback automatically to prevent the heads from becoming dirty.



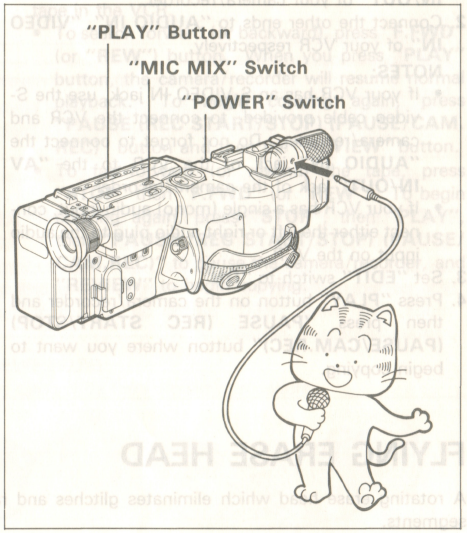
MICROPHONE MIXING

You can mix audio through the built-in microphone, external microphone or **"AV IN/OUT"** jack during playback. Connect a source from which you want to mix sound.

NOTE: If no external microphone or equipment is connected, you can mix sound from the built-in microphone. Do not connect an external equipment to **"AV IN/OUT"** jack when you mix audio through the built-in microphone or external microphone.

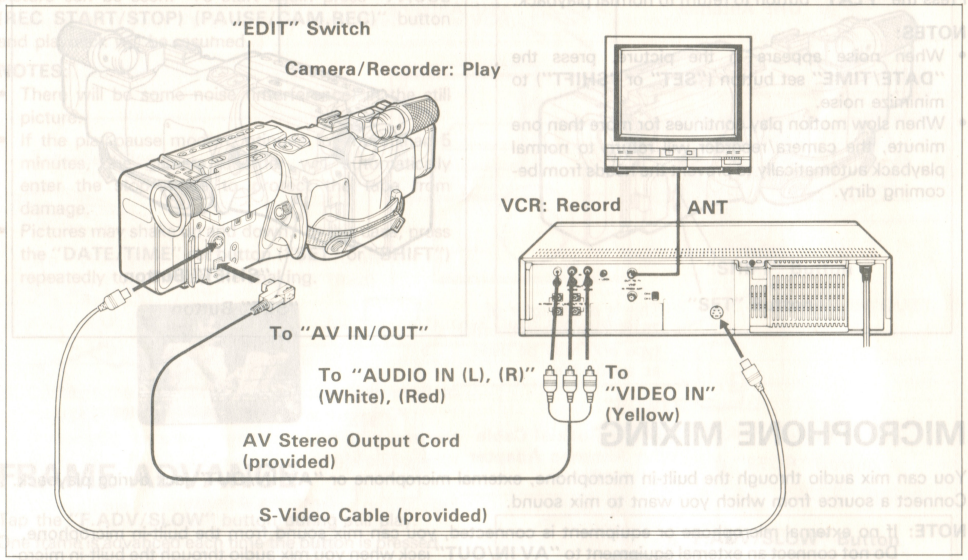
1. Set the **"MIC MIX"** switch to **"ON"**.
2. Set the **"POWER"** switch to **"VCR"**.
3. Press **"PLAY"** button to play a tape.
   - The picture appears on the TV and sound is output. When you speak to the built-in microphone, your voice is also output from the TV. When external microphone is connected, the sound from it is also output from the TV.

NOTE: If you use this microphone mixing function when copying a tape from the camera/recorder to a VCR, you can copy the mixed sound.



CAMERA/RECORDER TO VCR DUBBING

If you wish to exchange or copy some of your friend's favorite home recordings, the following instructions can be used to connect camera/recorder to VCR for this purpose.



1. Connect the AV stereo output cord to **"AV IN/OUT"** of your camera/recorder.
2. Connect the other ends to **"AUDIO IN"**, **"VIDEO IN"** of your VCR respectively.

   NOTES:
   - If your VCR has an S VIDEO IN jack, use the S-video cable provided, to connect the VCR and camera/recorder. Do not forget to connect the **"AUDIO IN"** jack of the VCR to the **"AV IN/OUT"** jack of the camera/recorder.
   - If your VCR has a single (mono) audio input, connect either the left or right audio plug to the audio input on the VCR.
3. Set **"EDIT"** switch to **"ON"**.
4. Press **"PLAY"** button on the camera/recorder and then press **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** button where you want to begin copying.
5. Press **"RECORD"** button and **"PAUSE"** button on the VCR.
6. Pressing **"REVIEW"** button on the camera/recorder puts the camera/recorder in the review mode for several seconds and then into the playback mode.
7. Monitor the picture and counter in the viewfinder or TV and when the tape reaches the exact point where you want to begin copying, press **"PAUSE"** button on the VCR.
8. Press **"STOP"** button on the VCR to stop recording and then **"STOP"** button on the camera/recorder.

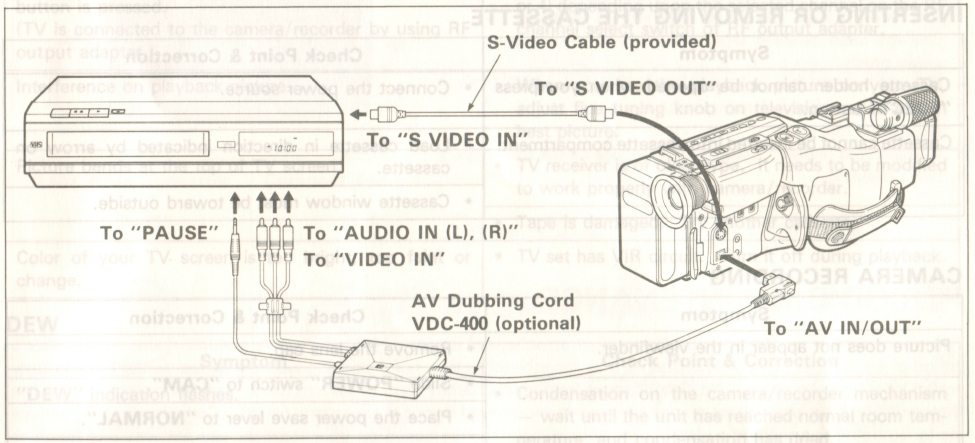
NOTE: If you connect the **"VHF OUT TO TV"** connector of VCR to the **"TV ANT"** connector, as illustrated and set **"VCR/TV"** selector of the VCR to **"VCR"** mode, the picture being dubbed by VCR can be monitored.

FLYING ERASE HEAD

A rotating erase head which eliminates glitches and rainbow noise that occurs at the joints between recorded segments.

SYNCHRO DUBBING

Synchro dubbing allows your camera/recorder to control a compatible VCR (one that has a camera pause jack) while tapes are being copied from the camera/recorder to the VCR. This is convenient when you want to record only selected segments from a previously recorded tape.



1. Connect your camera/recorder to a compatible VCR as shown above. An optional AV dubbing cord (VDC-400) is required.

   NOTES:
   - If your VCR has a single (mono) audio input, connect either the left or right audio plug to the audio input on the VCR.
   - If your VCR has an **"S VIDEO IN"** jack, use the S-video cable (provided) to connect the VCR and camera/recorder.
2. Insert the recorded tape into the camera/recorder.
3. Insert the blank tape into the recording VCR.
4. Press **"PLAY"** button on the camera/recorder and then press **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** button where you want to copy.
5. Press **"RECORD"** button on the VCR. The VCR automatically enters record/pause mode.

   NOTE: If the VCR begins to record instead of pausing, you will need to change the position of the switch on the AV dubbing cord. Stop the VCR, change the switch, and then press **"RECORD"** button on the VCR again.
6. Pressing **"REVIEW"** button on the camera/recorder puts the camera/recorder in the review mode for several seconds and then into the playback mode. The recording VCR starts recording automatically.
7. Pressing **"REW"**, **"F.FWD"**, **"STOP"** or **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** on the camera/recorder automatically put the VCR into the record/pause mode. This allows you to search (forward or backward), fast-forward or rewind the tape in the camera/recorder without disturbing the tape in the VCR.
   - To search forward (or backward), press **"F.FWD"** (or **"REW"**) button. When you press **"PLAY"** button, the camera/recorder will resume normal playback. To begin copying again, press **"PAUSE (REC START/STOP) (PAUSE/CAM. REC)"** button and then the **"REVIEW"** button.
   - To fast-forward (or rewind) the tape, press **"STOP"** then **"F.FWD"** (or **"REW"**). To begin copying again, press **"STOP"**, then **"PLAY"**, then **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** to pause the camera/recorder, and **"REVIEW"** to begin copying.

TROUBLESHOOTING

Your camera/recorder is a highly sophisticated instrument. It has been carefully checked and adjusted at the factory under the most rigid quality control and inspection systems. However, should problems develop, check the following points and take necessary corrective measures.

INSERTING OR REMOVING THE CASSETTE

Symptom	Check Point & Correction
Cassette holder cannot be opened when you press **"EJECT"** button.	* Connect the power source.
Cassette cannot be inserted into cassette compartment.	* Load cassette in direction indicated by arrow on cassette.
	* Cassette window must be toward outside.

CAMERA RECORDING

Symptom	Check Point & Correction
Picture does not appear in the viewfinder.	* Remove the lens cap.
	* Slide **"POWER"** switch to **"CAM"**.
	* Place the power save lever to **"NORMAL"**.
	* Disconnect the AV stereo input cord from the camera/recorder.
The camera/recorder will not go into the recording mode, even when **"REC START/STOP"** or **"PAUSE (REC START/STOP) (PAUSE/CAM.REC)"** button is pressed.	* Check the record-protect tab on the cassette. See page 15 for details.
	* Set **"POWER"** switch to **"CAM"** position.
	* Place the power save lever to **"NORMAL"**.
Picture is out of focus. Auto-focus does not operate.	* Set **"FULL AUTO"** switch to **"ON"** or **"FOCUS"** switch to **"AUTO"**.
Natural colors do not appear.	* Set the **"FULL AUTO"** switch to **"OFF"** and then press the **"WHITE BAL"** button to set the indication to the existing lighting conditions.

RECORDING TV PROGRAMS OFF THE AIR

Symptom	Check Point & Correction
The camera/recorder will not be set to the recording mode, even when **"REC"** button on the top of the camera/recorder is pressed.	* Check the record-protect tab on the cassette. See page 15 for details.
	* Set **"POWER"** switch to **"VCR"** position.
	* Connect the camera/recorder and TV (or VCR).

PLAYBACK OF PRE-RECORDED CASSETTE

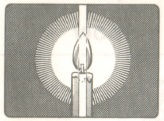
Symptom	Check Point & Correction
"PLAY" button cannot be engaged.	* Set **"POWER"** switch to **"VCR"** position.
No picture appears on television screen when **"PLAY"** button is pressed. (TV is connected to the camera/recorder by using RF output adapter.)	* Set the television to the camera/recorder channel (3 or 4) depending upon the selected channel on the RF channel select switch of RF output adapter.
Interference on playback picture.	* When you see the playback picture on your TV, adjust fine tuning knob on television set to obtain best picture.
Picture bends at the top of TV screen.	* TV receiver is of older type. It needs to be modified to work properly with camera/recorder.
	* Tape is damaged. Try another cassette.
Color of your TV screen is too bright, too faint or change.	* TV set has VIR circuit. Turn it off during playback.

DEW

Symptom	Check Point & Correction
"DEW" indication flashes.	* Condensation on the camera/recorder mechanism — wait until the unit has reached normal room temperature, and condensation has dried. **"DEW"** indication will then stop flashing.

BATTERY CONDITION

Symptom	Check Point & Correction
The **"E—"** indication in the electronic viewfinder or **" "** in the LCD panel flashes to indicate battery is discharged.	* Try another battery or charge the battery.



When shooting the subject shown in the illustration

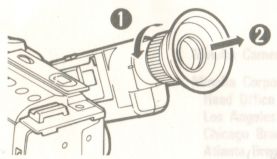
If you record a bright subject against a dark background, a band of light will appear at the top and bottom of the subject. This phenomenon is called vertical smear and does not indicate a fault.

- The illustration is a simplified representation of vertical smear so it can be understood more easily.

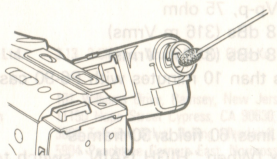
NOTE: The Master 8-918 is a microcomputer-controlled device. External electrical noise and interference might prevent it from functioning properly. In such cases, first disconnect the power supply (battery pack, AC adapter/charger, etc.) and remove the date/time battery. Then, reconnect power supply and reinsert date/time battery, and proceed as usual from the beginning.

■ CLEANING THE INSIDE OF THE ELECTRONIC VIEWFINDER

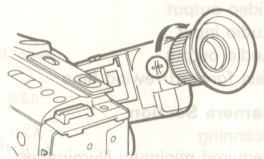
If dust or foreign matter adheres inside the viewfinder, clean it by the following procedure.



1. Rotate and remove eye cup.

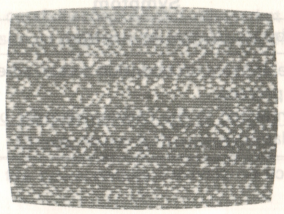


2. Clean picture tube face and lens. To prevent scratching, use a soft non abrasive cloth, swab or lens cleaning paper.



3. Align the reference mark and rotate the eye cup in the direction of arrow.

HEAD CLEANING



- Dirt accumulated on the video heads after a period of time may cause the playback picture to become blurred or part of the video information to be lost.
- This does not mean that the recorded programme has been erased but head cleaning is required. Use the head cleaning tape (provided) to clean the video heads.
- When it is difficult to remove a dirt using the head cleaning tape, head cleaning requiring highly technical care is necessary.
- Consult your nearest dealer or VCR service center for head cleaning.

PERIODIC MAINTENANCE

The video camera/recorder is a precision electromechanical device which will require periodic maintenance after a period of normal use. We expect that no maintenance other than head cleaning will be required during the warranty period by most users, unless the video camera/recorder is heavily used or seldom used. Normal maintenance is the responsibility of the user, although defective parts are covered during the warranty period. Consult your VCR service center to determine recommendations for normal maintenance based on your location, use patterns and machine age.

SPECIFICATIONS

■ **General**

Power requirements	6V DC
Power consumption	9.0 watts (When "FULL AUTO" switch to "OFF" and "FOCUS" switch to "MAN".)
Dimensions	4-7/16"(W) x 4-1/2"(H) x 13-3/16"(D) 113(W) x 114(H) x 335(D) mm
Weight	2.7 lbs (1.2 kg)
Operating temperature	32°F ~ 104°F
Storage temperature	−4°F ~ 140°F

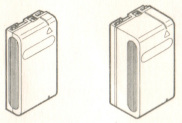
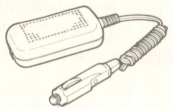
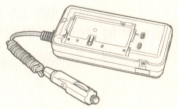
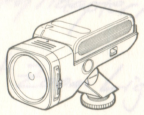
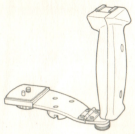
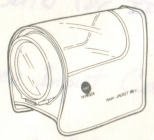
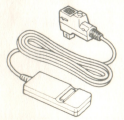
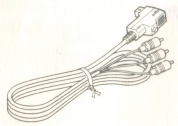
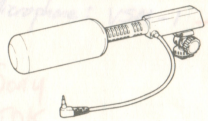
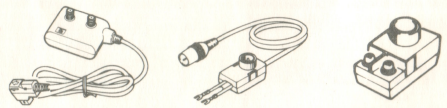
■ **Video Recorder Section**

Format	8mm
Record/playback system	Two video record/playback heads
Video signal	EIA standard NTSC color
Tape speed	14.3 mm/sec.
S video output	Luminance 1.0 Vp-p 75 ohm Chrominance 0.286 Vp-p 75 ohm
Video input	1.0 Vp-p, 75 ohm
Video output	1.0 Vp-p, 75 ohm
Audio input	−7.8 dBs (316 m Vrms)
Audio output	−7.8 dBs (316 m Vrms)
Fast forward/rewind time	Less than 10 minutes with P6-90 cassette

■ **Camera Section**

Scanning	525 lines/60 fields/30 frames
Required minimum illumination	7 lux (When "HIGH GAIN" switch to "ON".)
Pickup device	Two 1/2" C.C.Ds
Lens diameter	49 mm
Lens mount	Bayonet mount

OPTIONAL ACCESSORIES

Battery Pack VBP-400/VBP-401	Car Battery Cord VBC-400U	Car Battery Adapter/Charger VBA-400U	1.5x Tele Converter VLT-910
			
0.65x Wide Converter VLW-910	**Compact Zoom Light * VZL-400U**	**Halogen Lamp ** (6V, 15W) ZL-LP2**	**Shoe Bracket VSB-2**
			
System Case VCS-910	**Rain Jacket VRJ-1**	**AV Dubbing Cord VDC-400**	**Remote Controller VRC-2**
			
AV Stereo Input Cord VIC-3	**Stereo Microphone VSM-1**	**RF Output Adapter VRF-2U**	
			

* You need optional VBP-400 or VBP-401 battery for power.
** Replacement parts for VZL-400U.

Minolta Camera Co., Ltd. 3-13, 2-Chome, Azuchi-Machi, Chuo-Ku, Osaka 541, Japan

Minolta Corporation
Head Office 101 Williams Drive, Ramsey, New Jersey 07446, U.S.A.
Los Angeles Branch 11150 Hope Street Cypress, CA 90630, U.S.A.
Chicago Branch 3000 Tollview Drive, Rolling Meadows, IL 60008, U.S.A.
Atlanta Branch 5904 Peachtree Corners East, Norcross, GA 30071, U.S.A.

Minolta Canada Inc.
Head Office 369 Britannia Road East, Mississauga, Ontario L4Z 2H5, Canada
Montreal Branch 376 rue McArthur, St. Laurent, Quebec H4T 1X8, Canada
Vancouver Branch 105-3830 Jacombs Road, Richmond, B.C. V6V 1Y6, Canada

Accessories:

Car Battery Adapter/Charger: VBA-400U — $87.30 = $99.85

Compact Zoom Light: VZL-400U — 54.85

Battery for Light/Camcorder: VBP-401 — 59.85

Spare Bulb for Zoom Light: VZL-LP2 — 14.85

AV Stereo Input Cord: VIC-3 — 24.85

RF Output Adapter: VRF-24 ~~$11.95~~
product # 7821-820 — 59.85

Shoe Bracket: VSB-2 — 15.00

Stereo Microphone: VSM-1 —

Sony
TDK